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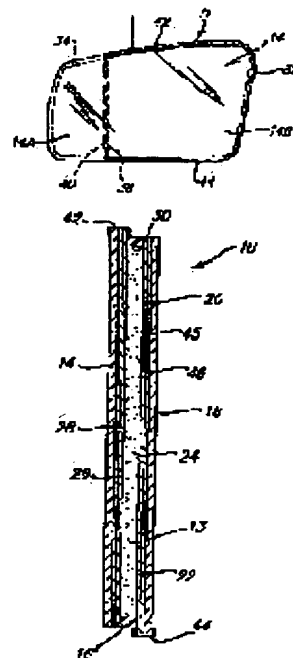
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(54) IMPROVED REARVIEW MIRROR FOR MOTOR VEHICLE

(57)Abstract:

PROBLEM TO BE SOLVED: To protect a driver from a glare and ensure high reflectivity with respect to another vehicle by allowing a protruded area of a mirror with a great radius of curvature to automatically reduce in quantity of light and a non-spherical area to be precluded from reducing in quantity of light, both areas being joined in one unit.

SOLUTION: A front glass element 14 of an outside mirror 11 is somewhat curved with a substantially flat or relatively great radius of curvature. The main body 14B inside a vehicle is integrally joined to a non-spherical portion 14A outside the vehicle with a substantially small radius of curvature. The main body 14B has an electric optical portion wherein an electric optical medium 24 has contact with electrode layers 22, 26 in a room 13 defined by two electrode contained faces 14, 18 and an inside wall 30 around a separate seal 16 during operation of the mirror to make a reflectivity variable, thus protecting a driver from a glare. On the other hand, the non-spherical portion 14A is protruded laterally to the outside of a body to help a preset view, substantially larger than a view of the main body 14B only and issue a danger signal with the high reflectivity when another vehicle comes near.



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CLAIMS

[Claim(s)]

[Claim 1] In an external reflector glass dimmed like electro-optics for automobiles this mirror A front element which has a part for the vehicle exterior moreover optically projected in a longitudinal direction outside from a part for a part for the transparent interior of a vehicle, and this interior of a vehicle, It comes to combine a posterior part element with a list. The amount of [of this front element and this posterior part element] this vehicle exterior It has the reflexivity surface on them, respectively. The amount of [of this front element and this posterior part element] this interior of a vehicle Carry out owner *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne. of a front and the hind surface, respectively, and space between this posterior part surface for this interior of a vehicle and this front surface of this posterior part element is formed. Electro-optics data medium is confined in this space, and light transmittance of this data medium can be changed by application of voltage to it by that cause. This front surface for this interior of a vehicle of this front element It is the mirror which has the front surface which has moreover projected a part for this vehicle exterior of this front element in a longitudinal direction outside across this front surface of this posterior part element by having planned radius of curvature.

[Claim 2] Claim 1 effective in hiding an adjacent part of this sealing means should put this reflexivity surface on this vehicle external part of this front element together including a sealing means arranged between this posterior part surface for this interior of a vehicle of this front element, and this front surface of this posterior part element.

[Claim 3] Claim 1 which is the thing of a non-ball-like configuration should put a part for this vehicle exterior of this front element together.

[Claim 4] The amount of [a part for this interior of a vehicle of this front element and] this vehicle exterior has a visual field of a schedule, respectively, and larger claim 1 than this visual field only for this interior of a vehicle should put this visual field of combination for a part for this interior of a vehicle, and this vehicle exterior together.

[Claim 5] Claim 1 including a slant face slot which has extended around the circumference of this front element should put together.

[Claim 6] This posterior part element is the same size as substantially as a part for this interior of a vehicle of this front element, and, thereby, claim 1 moreover projected in a longitudinal direction outside over both part for this interior of a vehicle of this front element and this posterior part element should put a part for this vehicle exterior of this front element together.

[Claim 7] Claim 1 including a means for controlling a color placed between a part for this interior of a vehicle of this front element and this posterior part element should put together.

[Claim 8] Claim 1 formed from one continuous piece of glass should put a part for a part for this interior of a vehicle of this front element, and this vehicle exterior together.

[Claim 9] Claim 1 which has radius of curvature smaller than this radius of curvature on this surface of a front for this interior of a vehicle of this front element should put a part for this vehicle exterior of this front element together.

[Claim 10] Claim 1 which has the faced curved surface should put a part for this interior of a vehicle and a posterior part element of this front element together.

[Claim 11] Claim 1 which has the surface where an even configuration is faced substantially should put a part for this interior of a vehicle and a posterior part element of this front element together.

[Claim 12] Claim 10 to which this reflexivity surface on this vehicle external part is located on a rear face for this vehicle exterior should put together.

[Claim 13] Claim 1 to which this reflexivity surface on this posterior part element is located on a front side of this posterior part element should put together.

[Claim 14] Claim 1 to which this reflexivity surface on this vehicle external part is located on a front side of this element outside a vehicle should put together.

[Claim 15] Claim 1 located on a field of this posterior part element with which this reflexivity surface on this

posterior part element faces this front element should put together.

[Claim 16] In an external reflector glass dimmed like electro-optics for automobiles this mirror It comes to combine an element as for which a gap of a front and a posterior part was vacant. This front element A part for a part for the interior of a vehicle and the vehicle exterior moreover projected in a longitudinal direction to the outside for this interior of a vehicle at a list is included. A part for this interior of a vehicle and this posterior part element of this front element ** between them is formed. The amount of [of this front element] this interior of a vehicle A field where it is transparent and a part for this interior of a vehicle of this front element and this posterior part element are faced At least one layer of conductive material is included, respectively. This ** Permeability data medium which can be changed is reversibly included in an electro-optics target in contact with each of this conductive layer. A part for this vehicle exterior and this posterior part element of this front element It has a visual field different, respectively. This light reflex nature means of this posterior part element When reaching this posterior part element reflexivity means after this light moreover passes through a part for this interior of a vehicle of this front element through this data medium, Are effective in moreover reflecting light through a part for this interior of a vehicle of this front element through this data medium. This light reflex nature means for this vehicle exterior A mirror including a means which applies voltage to this layer of conductive material which it is [material] effective in reflecting light which reaches this reflexivity means for this vehicle exterior, without passing through this data medium, and makes light transmittance of this electro-optics data medium produce fluctuation further.

[Claim 17] Claim 16 effective in hiding an adjacent part of this sealing means should put this reflexivity means on this vehicle external part of this front element together including a sealing means arranged between a part for this interior of a vehicle of this front element, and this posterior part element.

[Claim 18] Claim 16 smaller than a visual field of this light reflex nature means of combination for this vehicle exterior of this front element should combine this visual field of this light reflex nature means of this posterior part element with this posterior part element list.

[Claim 19] The amount of [a part for this interior of a vehicle of this front element and] this vehicle exterior has a visual field of a schedule, respectively, and larger claim 16 than this visual field only for this interior of a vehicle should put this visual field of this combination for a part for this interior of a vehicle, and this vehicle exterior together.

[Claim 20] Claim 19 including a slant face slot which has extended around the circumference of this front element should put together.

[Claim 21] This posterior part element is the same size as substantially as a part for this interior of a vehicle of this front element, and, thereby, claim 20 moreover projected in a longitudinal direction outside over both part for this interior of a vehicle of this front element and this posterior part element should put a part for this vehicle exterior of this front element together.

[Claim 22] Claim 21 including a means to be arranged between a part for this interior of a vehicle of this front element and this posterior part element, and to control a color should put together.

[Claim 23] Claim 16 which is one continuous piece of glass should put a part for a part for this interior of a vehicle of this front element, and this vehicle exterior together.

[Claim 24] Claim 16 which is the thing of a non-ball-like configuration should put a part for this vehicle exterior of this front element together.

[Claim 25] Claim 24 which has the surface where a curved configuration is faced should put a part for this interior of a vehicle and this posterior part element of this front element together.

[Claim 26] Claim 24 which has the surface where a substantial even configuration is faced should put a part for this interior of a vehicle and this posterior part element of this front element together.

[Claim 27] The amount of [a part for this interior of a vehicle of this front element and] this vehicle exterior has the curved surface which has radius of curvature, respectively, and larger claim 16 than a **** radius of the surface which the above for this vehicle exterior curved should put together radius of curvature of the surface which the above for this interior of a vehicle curved.

[Claim 28] Claim 16 which is conductivity again and is located on this posterior part element side that faces this front element should put this light reflex nature means of this posterior part element together.

[Claim 29] This light reflex nature means for this vehicle exterior should be located on a rear face for this vehicle exterior, and claim 16 located on a rear face of this posterior part element should put this light reflex nature means of this posterior part element together.

[Claim 30] Claim 28 located on a rear face for this vehicle exterior should put this light reflex nature means for this vehicle exterior together.

[Claim 31] Claim 28 located on a front side for this vehicle exterior should put this light reflex nature means on this vehicle external part together.

[Claim 32] Claim 16 located on a field of this posterior part element that is formed from a multiplex layer of conductive material, and faces this front element should put this light reflex nature means of this posterior part element together.

[Claim 33] Claim 16 to which this layer of a rhodium has this light reflex nature means of this posterior part element on a field of this layer of chromium which faces this front element including a layer of a rhodium and a layer of chromium should put together.

[Claim 34] Claim 33 with thickness thicker than this layer of a rhodium should put this layer of chromium together.

[Claim 35] Put combination in the direction planned making it see from a direction which is different in light partially reflected in a reflexible element, the light source, and a list from the aforementioned transparent reflexivity element transparently and partially moreover together in an electrochromic reflector glass for automobiles including a means to draw light emitted from this light source that passes through the aforementioned transparent reflexivity element.

[Claim 36] Claim 35 including a louver means should put together a means to draw the aforementioned light.

[Claim 37] Put this element in the direction planned making it see from a direction which is different in light reflected in light transmission nature reflexivity coating, the light source, and a list from this coating together including a means to draw light emitted from this light source that passes through light transmission nature reflexivity coating, including an element with which combination can transmit this reflected light to coincidence in a reflector glass of the exterior for automobiles.

[Claim 38] Claim 37 including a lens means to draw light emitted toward this element from this light source should put together.

[Claim 39] Claim 37 including a louver means and a lens means to draw light emitted toward this louver element from this light source in a list should put together a means to draw the aforementioned light.

[Claim 40] Claim 37 which has a part of the non-ball-like configuration should put this element together.

[Claim 41] In a reflector glass dimmed like electro-optics for automobiles this mirror It comes to combine a means to draw light emitted from this light source that passes through this front and a posterior part element in the direction planned making it see from a direction which is different in light reflected from a conductive light reflex nature means by which the above on an element as for which a gap of a front and a posterior part was vacant, the light source, and this posterior part element was put together. A field of this front element that this front element and this posterior part element form ** between them, is transparent as for this front element, and faces this posterior part element A field of this posterior part element that faces this front element including a transparent conductive means A conductive light reflex nature means put together is included. This ** Permeability data medium which can be changed is reversibly included in an electro-optics target in contact with a conductive light reflex nature means by which the above on the aforementioned transparent conductive material on this front element and this posterior part element was put together. as for a conductive light reflex nature means by which the above on this posterior part element was put together, this light should pass this data medium -- moreover, pass this front element -- a time of reaching a conductive light reflex nature means by which the passed backward above was put together -- this data medium -- a passage -- moreover -- this -- a mirror effective in reflecting light through a front element.

[Claim 42] Claim 41 including a louver means should put together a means to draw the aforementioned light.

[Claim 43] Claim 41 including a louver means and a lens means to draw light emitted toward this louver means from this light source in a list should put together a means to draw the aforementioned light.

[Claim 44] Claim 41 including a louver means and a means to draw light emitted toward this louver means from this light source in a list should put together a means to draw the aforementioned light.

[Claim 45] Claim 41 which has electric resistance higher than a conductive light reflex nature means by which the above on this posterior part element was put together per unit area should put the aforementioned transparent conductive means on this front element together.

[Claim 46] Claim 41 containing an indium stannic acid ghost should put the aforementioned transparent conductive means on this front element together.

[Claim 47] Claim 41 containing chromium and a rhodium should put together a conductive light reflex nature means by which the above on this posterior part element was put together.

[Claim 48] Claim 41 including coating chosen from a group which becomes a rhodium, platinum, titanium, a ruthenium, iridium, gold, stainless steel, silver, nickel-chromium and chromium, and a list from these alloys should put together a conductive light reflex nature means by which the above on this posterior part element was put together.

[Claim 49] Claim 41 including a mark means "to try to pass this front element" should put together.

[Claim 50] A conductive light reflex nature means by which the above on this posterior part element was put together should form an opening, and claim 41 try to pass this opening, a list, this front, and a posterior part element should put a mark means together.

[Claim 51] Claim 41 including chromium, titanium, stainless steel, nickel-chromium, gold and silver, the first high conductance coating chosen from a group which becomes a list from these alloys, and the second high reflection factor coating chosen as a list from a group which becomes from these alloys at a rhodium, platinum, a ruthenium, iridium, stainless steel and chromium, and a list should put together a conductive light reflex nature

means by which the above on this posterior part element was put together.

[Claim 52] A conductive light reflex nature means by which the above was put together should form an opening, and claim 41 try to pass an opening formed by conductive light reflex nature means by which the above was put further together should put a vacuum fluorescence display means together through this front and a posterior part element.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] Further especially this invention relates to the reflector glass of the interior where the automobile was improved, and/or the exterior about the reflector glass of an automobile.

[0002]

[Description of the Prior Art] To current, the various automatic reflector glasses of an automobile are devised, and they are the purposes which protect the glare (glare) from the light emitted from the headlight of the vehicles which approach from back, and change from total reflection factor mode (day ranges) to partial reflection factor mode (Nighttime) automatically. It is published on February 20, 1990. Single compartment and self-elimination, Solution phase electrochromic (electrochromic) equipment, U.S. Pat. No. 4902108 concerning the use to the solution list used for it, U.S. Pat. No. 4917477 are published on April 17, 1990 and concerning the automatic reflector glass system of an automobile, U.S. Pat. No. 5128799 are published on July 7, 1992 and concerning an adjustable reflection factor automobile mirror, U.S. Pat. No. 5202787 are published on April 13, 1993 and concerning an electro-optic device, U.S. Pat. No. 5280380 are published on January 18, 1994 and concerning an ultraviolet-rays stabilization constituent and a method, And the electrochromic mirror which is published on January 25, 1994 and is indicated by U.S. Pat. No. 5282077 about an adjustable reflection factor mirror (each of these patents) it is transferred to the grantee of this invention, and these the indication of each is quoted as reference here -- having -- the automatic reflector glass of the latest day ranges about an automobile is typical. These electrochromic mirrors are used by the reflector glass system of the inside/outside unified completely, or can be used as a reflector glass system of the inside or an outside. Generally, at the automatic reflector glass of the type indicated by United States Patent 4902108th, 4917477, 5128799, 5202787 and 5280380, and No. 5282077, the reflector glass of both inside and outside consists of comparatively thin electro-optics data medium by which was sandwiched between the glass elements of two sheets, and the seal was carried out. In most cases where electric energy is given to electro-optics data medium, as it becomes dark, and begins to absorb light and voltage becomes high further, a mirror becomes darker. or [that voltage falls to zero] -- or when removed, a mirror returns to the condition of having been transparent. Moreover, the approach cover with the solution which generally contains other compounds at least in order that other electro-optics data medium can be use and the electrochromic layer of tungstic oxide may offer a counterelectrode reaction although electro-optics data medium by which was sandwiched and the seal was carried out between the glass elements of two sheets consists of a solution of the electrochromic compound which functions as data medium of the adjustable permeability in a mirror preferably on one electrode is include. The reflector glass of the feature directed when operated automatically is equipped with an optical sensitivity electronic circuitry effective in generally, changing a mirror to the reflection factor mode by which extinction was carried out, when a glare is detected, and sandwiched electro-optics data medium is activated, and a mirror is dimmed according to the amount of the glare detected. A mirror returns to the condition of the normal high reflection factor automatically in the direction of the driver of an automobile, without requiring what kind of activity as a glare subsides. Electro-optics data medium is arranged at ** which is formed with the reflector glass element which has a transparent windshield element, a surrounding edge seal, and a reflexivity layer and by which the seal was carried out, and electro-optics data medium occupies **. Although a conductive layer is put inside the element of a windshield and a back glass and the conductive layer on a windshield element is transparent As the conductive layer on a back glass element is transparent or it is opaquely indicated by aforementioned United States Patent at details the conductive layer on a back glass element It can function as a reflexivity layer for a back glass element. Moreover, and the conductive layer on both windshield element and back glass element When it switches to the mode with which the reflection factor of Nighttime decreased the mirror when a glare is detected, and then a glare subsides, in order to carry out a mirror and to make it return to the mode in which the reflection factor of day ranges is high, it connects with an electronic circuitry effective in giving energy electrically to electro-optics data medium. In order to clarify description of this structure, occasionally use the front surface of a windshield element as the first surface below, and, occasionally let the surface inside a

windshield element be the second surface. Occasionally use the surface inside a back glass element as the third surface, and, occasionally let the surface of the back of a back glass element be the fourth surface.

[0003] Application under application of the applicant entitled "the reflector glass for automobiles made gloomily" if it was a request (the application) The description of all as it is transferred to the grantee of this invention and indicated by being quoted as reference here at details a reflexivity layer It can be provided on the inside (the third surface) of the back glass of the extinction (dimming) portion of a reflector glass. The layer Consisting of a series of coating called a multi-layer combination reflective object / electrode to below, it forms the perfect electrode which contacts electrochromic data medium again. other electrodes on the surface inside a windshield (the second) -- moreover, it is a transparent electrode in contact with electrochromic data medium inside a mirror element. A series of coating of a multi-layer combination reflective object / electrode Combine with the glass surface firmly, and resist the corrosive action of the material in electrochromic data medium, and even if few, basic coating, A list is contacted electrochromic data medium and directly. And the high reflection factor and the stable property as an electrode, The resistance over the corrosion by the material of electrochromic data medium, the resistance over atmospheric corrosion, It consists of over coating of the reflexivity mainly chosen about the ease cleaned to the electrode surface of the capacity to adhere to the resistance over electric contact corrosion, and basic coating, and the high quality which is not polluted. Transparent coating is the indium oxide (ITO) or a series of metallic-oxide coating which were doped with the tin oxide doped with the fluorine which has basic coating which suppresses preferably the color and reflection accompanied by transparent coating of the conductivity which contacts directly to electrochromic data medium, and tin. When a series of transparent coating is used, material is chosen about the resistance to good association and the corrosion by the material of electrochromic data medium, the resistance to the corrosion by atmospheric air, the minimum reflection factor, high light transmission, the color near colorlessness, and high conductivity. Moreover, a reflexivity electrode can be made a remarkable degree, conductivity can be made very high, and it compensates with a conductive low transparent electrode and a multiplication-way, and it has the optical property which was excellent as a result, becomes dark, and becomes the electrochromic mirror which is already transparent in homogeneity also in whether it is a comb possible [permission].

[0004] This multiplication-structure is applicable to the reflector glass of both the inside for automobiles, and an outside. When a multi-layer combination reflective object / electrode is used by the mirror of arbitration, it It has the advantage of the proper which decreases the multiplex image by the raindrop, dust, etc. in a twin image, distortion, and a list. A low-end reflection factor low enough is brought to mitigating a glare strong against the good homogeneity of change of the reflection factor covering the surface of the speed which was furthermore excellent in change of a reflection factor, a good high-end reflection factor, and a mirror, the color near colorlessness, the reflection factor that can change continuously, and a list. Although reduction of a twin image and distortion is bent, for example, it uses the glass which has the slight fluctuation, few waves, or camber in the radius of curvature which produces few defects although two pieces of vent glass required of making a convex electrochromic mirror is set. Especially in the case of an extinction mirror, it is useful.

[0005] The external reflector glass of the aspheric surface which cannot be dimmed automatically which eliminates most blind spots of common knowledge of the external mirror of the increase of a field of view and the conventional optical flats of the driver of an automobile, and/or curved surface glass to current has been offered. generally many radius of curvatures are used for the mirror of the aspheric surface -- or it is manufactured by combining the main curved fields which have the same fixed radius of curvature as the mirror of the convex ordinarily used for the external mirror of the main flat fields (radius of curvature of infinity), or the pedestrian side in the U.S. recently with the aspheric surface field arranged at the portion besides the curvature of the type of 23, i.e., the vehicle of a mirror. Generally, the high curvature in an aspheric surface field produces the visual field which is that [about 3 times] of the mirror of the twice [about] and the flat surface of that of a convex mirror and which was expanded very much. Therefore, the mirror of the aspheric surface is useful to making a lane change, observing the vehicles, for example, the automobile, two-wheel barrow, and bicycle of the others which are made to look at the lane where the driver of an automobile is carried out by that cause, and a road adjoins, and are running the adjoining lane except for the so-called conventional blind spot. However, when doing one's best in the back (the fourth) surface of a posterior part glass element to assemble the aspheric surface outside reflector glass which has a reflexivity layer and which is dimmed automatically, serious cost and a technical problem arise. That is because it is generally required to double very closely the curvature of the glass element of two sheets of complicated curvature occasionally called "the twins who matched" in this industry. A glass element produces a twin image in a mismatch, and it is a question whether the mirror of the aspheric surface without the twin image which has a reflexivity layer on the fourth [of current and a mirror element] surface and which is dimmed automatically can manufacture industrially from a viewpoint in practice and/or economically. However, when a multi-layer combination reflective object / electrode is used inside the aspheric surface portion of the reflector glass which is assembled according to this invention and which can be dimmed (the third surface), such a good result that is not expected is obtained that it is moreover surprised. The

advantage which includes a directional light or other signals, for example, a brake signal, in each of the mirror of the outside of an automobile to current is recognized. It was published on May 7, 1991, and was published on U.S. Pat. No. 5014167 about a visible signalling device, and May 4, 1993, and U.S. Pat. No. 5207492 about a mirror assembly has described a mirror to which a signal indicator is located in the back on the surface of a mirror. It is hidden from the field of view of the operator of an automobile by special use of a dichroism reflective object, the light source, and a direction louver means, these signals, for example, directional light, therefore a visual field is not made to block, a signal being visible to the vehicles which pass consecutive vehicles or which side in addition. The vehicles located in the blind spot which has an advantage in remainder ahead and cannot see the directional light of the conventional posterior part are receiving warning of **** vehicles' just bending. These mirrors are increasingly known for this industry as a "signal mirror." To current, the signal mirror was not industrially successful especially for the difficulty of the proper which combines cost, a technical issue and this feature, and the mirror dimmed automatically.

[0006]

[Problem(s) to be Solved by the Invention] The purpose of this invention is to offer the improved aspheric surface outside reflector glass which conquers the serious cost and the serious technical issue which meets during the efforts for for double very densely the complicated curvature of the glass plate of a large number use for the aspheric surface outside reflector glass dim automatically [the directed property] , carries out a mirror further , and includes manufacture and the means which carry out assembly , and which were improved from a practical viewpoint industrially and economically and which dims automatically and partially . Other purposes of this invention are offering the improved extinction reflector glass which increases the safety of the driving of Nighttime.

[0007]

[Means for Solving the Problem] Other purposes of this invention can change from the high reflection factor mode to partial or low reflection factor mode for the purpose of glare protection of a portion of a mirror in the car. On the other hand, supposing a portion outside a vehicle of a mirror is in near on a lane which other vehicles adjoin also under a glare generation condition It is always in offering an aspheric surface outside reflector glass which is still the mode of a high reflection factor and with which it has been improved for automobiles so that a signal of potential risk/warning may be brought about. Other purposes of this invention are to offer an extinction reflector glass with which it has been improved for [which brings about a larger visual field than the conventional flat or a convex extinction outside reflector glass] automobiles. Other purposes of this invention have a comparatively economical mirror in manufacture and assembly, and it is to offer [endurance and] efficient and an extinction reflector glass of electro-optics which can perform actuation of reliability and with which it has been improved for automobiles. Other purposes of this invention are to offer an improved signal means related to an outside reflector glass with which it has been improved for automobiles. The purpose of still others of this invention offers a signal means improved in a portion outside a vehicle of a mirror dimmed partially, and technical difficulty of it is lost by that cause, and it is for cost to decrease. Other purposes of this invention are to offer an extinction reflector glass with which it has been improved the good homogeneity of change of a reflection factor of the whole surface of speed which multiplex images by raindrop decreased in number in a twin image, distortion, and a list, and was excellent in change of a reflection factor, a good high-end reflection factor, and a mirror, a color near colorlessness, a reflection factor changed continuously, and for [from which a low-end reflection factor is obtained good] automobiles. Other purposes and advantages will become clear from the following description, an example, a claim, and drawing at the above-mentioned list of this invention.

[0008] Drawing 1 is front view which explains roughly a reflector glass system of the inside/outside for automobiles, it can suit so that those all may be install in an automobile in the conventional way including an extinction inside reflector glass with an extinction outside reflector glass of two sheets with which a system has embody this invention, and a mirror can face a posterior part of vehicles by that cause, and it can see with a driver of vehicles, and a back visual field can be bring to a driver. Drawing 2 is expansion and an easy cross section of an inside reflector glass which were taken by the Rhine 2-2 and which were drawn on drawing 1 . Drawing 3 is the exploded view of a partial extinction outside reflector glass of the aspheric surface of electro-optics of left drawn by drawing 1 . Drawing 4 is the front view of a mirror drawn on drawing 3 . Drawing 5 is a plan where a mirror drawn on drawing 4 is easy. Drawing 6 is the easy side elevation on the right-hand side of a mirror which can be seen by drawing 4 which shows electro-optics structure. Drawing 7 is the rough side elevation of other modes of this invention easy moreover. Drawing 8 is the rough side elevation of other modes of this invention easy moreover. Drawing 9 is the rough plan of other modes of this invention easy moreover.

[0009] electro-optics data medium by which the seal of some [at least] reflector glass assemblies was generally carried out between glass elements of two sheets at a reflector glass of the inside of a mode of this invention, and an outside -- it will consist of a film comparatively. A mirror becomes dark as it becomes dark, and it begins to absorb light and voltage goes up, when electro-optics data medium is energy-ized electrically. or [that voltage falls to zero] -- or when removed, electro-optics data medium returns to the condition of having

been transparent. A reflector glass of a mode of this invention is the thing of a type which is published by aforementioned United States Patent 4902108th, 5128799 and 5202787, No. 5280380 or 5282077, and list on May 7, 1991, is published on U.S. Pat. No. 5014167 about a visible signalling device, and May 4, 1993, and is indicated by U.S. Pat. No. 5207492 about a mirror assembly. However, it should understand that electro-optics data medium and other components, which are an electronic circuitry of other types and other types, can use for a mirror of a mode of this invention.

[0010] In one mode of this invention, although a flat field where a mirror is big, and/or a field of a big convex of radius of curvature are dimmed automatically, an outside reflector glass of the aspheric surface which a portion of the aspheric surface of a mirror does not have is offered. Main aspects of affairs of this mode of this invention have a windshield element in a fact which is formed in a part for the main body part in the car which it curves level or slightly substantially, and a list at a part for the main body part, and one, and is formed with one continuous components containing an aspheric surface portion outside a vehicle moreover projected in a longitudinal direction outside from it. Although a lateral mirror has a part for the interior of a vehicle of a spherical convex of big radius of curvature combined with an aspheric surface portion outside a vehicle, and one in the most practical form, the amount of interior of an extinction vehicle is the thing of a flat or other configurations, and it will be understood that it is the thing of a configuration cylindrical [an aspheric surface portion] or spherical, or can form with many radius of curvature or other configurations.

[0011] A mirror assembly of the inside/outside of electro-optics of a mode of this invention generally named 9 is drawn on drawing 1 -6 about drawing. Since some of each layer of a mirror of an assembly 9 is very thin, a scale is changed in order to make a picture clear. The mirror assembly 9 contains the lateral mirrors 11 and 12 in inside mirror 10 list as shown in drawing. In order to make it clear, although the same numbers differ slightly in a configuration, they function in the same way substantially and obtain the same result as a component taught similarly by a diagram. A component of a mirror of the inside and an outside is clarified. For example, a configuration of a windshield element of a mirror of a left outside is the reverse of a configuration of a mirror of a right outside, and a windshield element of an inside mirror is narrow generally for a long time than a windshield element of a lateral mirror. Although drawn, in a mode, each of mirrors 10, 11, and 12 contains ** 13 which is formed with the windshield element 14, the edge seal 16, and the posterior part glass element 18 which have reflexivity and the conductive metal layers 20 and 22, respectively and by which the seal was carried out. The tin oxide conductivity layer 26 which electro-optics data medium 24 which has desired electro-optics nature filled ** 13, and doped, transparent conductive layer, for example, fluorine, is owned with the front element 14. A conductive layer is connected to an electronic circuitry so that it may be described by details below. If it is a request, color control coating of one or more layers, 28 [for example,], will be arranged between the posterior part surfaces where the conductive layer 26 and the front element 14 adjoin. Light passes along the windshield element 14, the color control coating (an unit or plurality) 28, the transparent conductive layer 26, and electro-optics data medium 24, before being reflected from the layer 22 (or supposing a layer 22 is very thin layers 20 and 22) of conductivity established on the posterior part glass element 18, and reflexivity. Reflected light comes out by the same general way crossed towards reverse. By electrochromic data medium, both incident ray and reflected ray decline according to a degree to which electro-optics data medium 24 is absorbing light, and, on the other hand, in some case, light is decreased in one direction by other electro-optics data medium. When electro-optics data medium 24 is moreover very light absorption nature in electrochromic one, reinforcement of light which comes out decreases and an extinction image which remains is mainly from light reflected in a front face of the windshield element 14, and a list from an interface between the windshield element 14, coating 28, and/or 26. Therefore, a fundamental structure element of each electro-optics portion of a mirror Two an electrode content side or walls 14 and 18, spacings, or the separation seals 16 (in assembled equipment, detach a wall mutually in an parallel relation substantially, and it holds) capacity currently formed with the equipment furthermore assembled by the wall 30 inside [of the surface inside an electrode layer on an electrode content wall, and the seal member 16] surrounding — surrounding — it contains. here where capacity of ** 13 is desirable and it has reversibly permeability which can be changed in actuation of equipment — or a thing of arbitration of electro-optics data medium indicated in the above-mentioned patent is filled up through the restoration hole 32 in which a seal is possible, and data medium in ** 13 contacts both of the electrode layers 22 and 26 during actuation of a mirror. Probably, it turns out that electro-optics data medium for attaining a reflection factor which can be changed may be the thing of the above-mentioned arbitration in other solution phase erection potter's wheel mixes, a solid-state erection potter's wheel mix, two combination of a hybrid form, or a matrix by which the polymerization was carried out. Liquid crystal, a bipolar suspended solid, or other electro-optics data medium could be used by mirror of a mode of this invention.

[0012] In a mode of drawn this invention, the reflexivity surface inside posterior part glass 18 consists of a series of coating called a multi-layer combination reflective object / electrode to below, they work as a mirror reflection factor layer, and an one-electrode which contacts electrochromic data medium again is formed. Other electrodes on the surface inside a windshield 14 are the transparent electrodes 26 which contact electrochromic

data medium inside a mirror element again. A series of multi-layer combination reflective object / electrode coating consist of base coating which combines with the glass surface firmly and resists corrosive action of material in electrochromic data medium. Preferably, although base coating is chromium, it may be material or a series of coating of arbitration which attains stainless steel, nickel chromium, titanium, gold, silver, or the above-mentioned purpose independently. Thickness of base coating is 100 – 1500A generally, and is 200 – 800A further generally. Reflexibility coating of the last which contacts electrochromic data medium and directly is mainly chosen as the high reflection factor, resistance over an attack by electrochromic data medium, resistance over atmospheric corrosion, resistance over electric contact corrosion, and a list about capacity to adhere to base coating. It should understand that it is independently possible to choose out of a group which was limited to these although desirable material about reflexibility coating consisted of a multiple layer which includes metals and those alloys, for example, platinum, a ruthenium, iridium and stainless steel, or such combination although it is the rhodium which has outstanding hardness, an outstanding reflection factor, and outstanding conductivity and which is not. Thickness of reflexibility over coating is 100 – 1000A generally, and is 100 – 600A further generally. A series of coating of this multi-layer combination reflective object / electrode has over coating of one or more layers which brings an additional conductive and high reflection factor to base coating of one or more layers and a list which bring about a high reflection factor generally. As an example, the sheet resistance of a multi-layer combination reflective object / electrode is about 1 – 10 ohms per square.

[0013] The transparent coating 26 is made from a series of coating which has base coating of one or more layers which controls preferably a color and reflection accompanied by transparent coating of tin oxide doped with a fluorine, ITO, or conductivity which contacts electrochromic data medium and directly independently. When a series of transparent coating is used, material is chosen about good resistance over good association and corrosion by material in electrochromic data medium, resistance over corrosion by atmospheric air, the minimum reflection factor, high light transmission nature, an almost colorless color, and high conductivity. A suitable low transparent electrode covering glass base of cost of a type is Toledo and Libbey of Ohio. Although it is "TEK 20" currently manufactured by Owens-Ford or "TEK 15", other suitable coating is ITO or the very thin metal layer which can function as a transparent electrode independently. Transparent electrode material is restricted to balance of a property and cost in proper. In low permeability and a list, it blooms cloudy, and coating with low transparent sheet resistance which has sheet resistance lower than about 10 ohms per square has a defect which possible others containing non-homogeneous and high cost of thickness of coloring and coating accompany, and is a victory. This does not make coating with low transparent sheet resistance more practical about an electrochromic mirror. An electrochromic mirror which becomes dark and is transparent at early and homogeneity to a remarkable degree, it being possible to make low electric resistance of a multi-layer combination reflective object / electrode, and having the optical character which was excellent as a result, so that it is permissible over a field of the surface in order to compensate a synergism by transparent electrode with high electric resistance is obtained.

[0014] It is per [3 / about] square [which has about 18 – 22 ohms per square or a front transparent electrode beyond it in which such a good result that an electrochromic mirror is surprised about speed of coloring and transparency and homogeneity is shown in order to prove a surprising property of multiplication nature]. – It is constituted by the multi-layer combination reflective object / electrode of about 7-ohm sheet resistance. although an electrochromic mirror which has a reflective object on the front surface of a posterior part element is already described -- ***** -- an ease of cleaning for good adhesion on a high reflection factor and glass, low sheet resistance, and an electrochromic mirror -- bringing -- transparence of the high resistance of especially low cost -- coating and ***** -- use of multi-layer coating to require is desirable. Therefore, if it is a request, in order to attain an electrochromic mirror of effective high performance in cost, the multi-layer combination reflective object / electrode of high conductivity on the third surface which has a front electrode with low transparent conductivity on the second surface can be used for a mirror of a mode of this invention. This multiplication-structure has an advantage of a proper which decreased a multiplex image from a raindrop in a twin image, distortion, and a list (mirror curved especially the shape of a convex or a ball), and provides with a low-end reflection factor low enough softening a glare strong against the good homogeneity of change of a reflection factor covering a field of speed which was excellent in change of a reflection factor on the other hand, a good high-end reflection factor, and equipment, an almost colorless color, and a list.

[0015]

[Example] The following is the example of the component understood used and are suitable for the reflector glass of the mode of this invention, and it will be understood that other components can be used for the reflector glass of the mode of this invention.

[0016] Example The 1 multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 300A titanium, about 200A gold, and about 200A platinum one after another on a sheet with a thickness [of the 6.6cmx14.4cm surface of a soda lime float glass] of 0.2cm. Deposition was attained by rotating the glass sheet which passes along three separate metal targets by the magnetron sputtering system

with the base pressure of 3×10^{-6} torr, and the argon pressure of 2×10^{-3} torr. SAE The white light reflection factor of the CIE curve of the first surface from a multi-layer combination reflective object / electrode which has the platinum surface in contact with air measured according to the way of J964 was 71.9%, and the sheet resistance of a metal layer was 3.2 ohms per square. This multi-layer combination reflective object / electrode covering glass were used as a posterior part element of electrochromic mirror equipment. A front element is TEK of the same size as a posterior part element. It was the sheet of the transparent electric conduction object covering glass of 20. The transparent sheet resistance of an electric conduction object was about 20 ohms per square. As shown in drawing 2, two elements faced mutually and were combined with both epoxy circumference seals with the transparent electric conduction object electrode offset substantially in parallel, and the multi-layer combination reflective object and / electrode. The inter-electrode gap was about 0.014cm. The inside of 3% of the weight of the solution of Elvacite(trademark) 2041 polymethylmethacrylate resin by which equipment was dissolved in polyethylene carbonate, 0.034-mol 5, 10-dihydro - 5, 10-dimethyl phenazine, 0.034-mol 1, 1'-JI (phenylpropyl) -4, 4'-bipyridinium difluoro borate, 0.5-mol ethyl-2-cyano - Vacuum filling was carried out through the small gap left behind to the circumference seal with 3 and the solution which consists of 3'-diphenyl acrylate. The small crevice was closed by the ultraviolet curing adhesives hardened by putting to ultraviolet rays. The reflection factor (it measured like [element / posterior part / former]) of the equipment when not applying voltage was 56%, and when 1.2 volts was bet, the reflection factor fell to 10% in 5 seconds, and fell to 7.5% within 10 seconds. When equipment was short-circuited, in 15 seconds, the reflection factor increased to 56% and returned.

[0017] Example 2, especially except stating, the conditions of an example 1 were used by this example. The multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 300Å chromium, about 500Å silver, and about 300Å platinum one after another with the base pressure of 3.7×10^{-6} torr, and the argon pressure of 8×10^{-3} torr. The reflection factor of the first surface was 73.3%, and sheet resistance was 0.1 ohms per square. When building electrochromic mirror equipment with this multi-layer combination reflective object / electrode, equipment has 57.0% of high-end reflection factor, and 6.5% of low-end reflection factor, and changed with 1.2-volt application from 57.0% to 10.0% in 2.0 seconds.

[0018] Example 3, especially besides stating, the conditions of an example 1 were used by this example. The multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 600Å chromium and about 300Å platinum one after another. It was 8×10^{-6} torr in a 2.1×10^{-6} torr base pressure, and argon pressure. The reflection factor of the first surface was 73.8%, and sheet resistance was 3.2 ohms per square. When electrochromic mirror equipment was built with this multi-layer combination reflective object / electrode, equipment has 58.0% of high-end reflection factor, and 7.0% of low-end reflection factor, and changed with 1.2-volt application from 58.0% to 10.0% in 2.7 seconds.

[0019] Example The 4 multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 600Å chromium and about 100Å 316 stainless steel one after another on a convex with a circle diameter [of the glass bent with a press to the uniform spherical curvature which has the radius of curvature of 140cm in a list] of 22cm on the sheet with a thickness [of the 19cmx66cm surface of an even soda lime float glass] of 0.2cm. The bent glass is Toledo and Libbey of Ohio. TEK currently manufactured by Owens-Ford It was 20 tin-oxide covering glass, and tin oxide coating was on the concave surface, after glass was bent. Deposition was attained by the big in-line sputtering system. The reflection factor of the first surface from a multi-layer combination reflective object / electrode was about 58%, and sheet resistance was about 7 ohms per square. The even glass sheet *(ed) and bent was cut in the configuration of the mirror which are a height of about 10cm, and width of face of 16cm. These were used as a posterior part element of the extinction mirror of the outside of an automobile as follows. As compared with the glass covered only with the chromium metal, they are electrochromic extinction mirror equipment as a final product, and clarification of these pieces of a multi-layer combination reflective object / electrode covering glass was dramatically carried out to the conditions which function as an electrode of high quality uniform without the spot colored unsavorily and a flaw easily. a multi-layer combination reflective object / electrode covering glass is even -- it ** and a convex piece is even respectively -- *(ing) -- TEK of convex covering glass The piece of the shape of a mirror of 20 covering piece was matched. It was bent as the convex mirror glass of a front element also had tin oxide coating on a concave surface. Mirror equipment is TEK. It was made by carrying out the seal of most circumferences of a glass piece altogether with the epoxy resin seal content glass bead spacer which brings about the gap of 0.015cm between 20 transparence tin oxide electrode, and a multi-layer combination reflective object / electrode. The gap between electrode surfaces is 5 [0.028-mol] in the solution of 3% of the weight of the Elvacite(trademark) 2041 polymethylmethacrylate resin dissolved in polyethylene carbonate, and 10-dihydro. - It is 1, 1'-JI (phenylpropyl) -4 and 4'-bipyridinium difluoro borate (5, 10-dimethyl phenazine, and 0.034 mols), and 2 [0.030-mol]. -(2'- hydroxy-5'-methylphenyl)- It filled up with the solution which consists of The high-end reflection factor of a mirror was about 45%, and the low-end reflection factor was about 7%. The mirror changed the reflection factor to 15% from 45% in about 5 seconds, and brought about relaxation of the glare which was

excellent when dimming the level of a reflection factor suitable during the driving of Nighttime.

[0020] Example All the ways of an example 4 were repeated except the 5 multi-layer combination reflective object / electrode having been manufactured by the sequential deposition of about 400Å chromium and about 200Å rhodium. The reflection factor of the first surface from a multi-layer combination reflective object / electrode was about 70%, and sheet resistance was about 7 ohms per square. according to the way of an example 4, it was manufactured with this multi-layer combination reflective object / electrode -- even -- it ** (ed), convex extinction mirror equipment had about 55% of high-end reflection factor, and about 7% of low-end reflection factor, and the speed of change of a reflection factor was the same as that of the mirror of an example 4. The drive of Nighttime was enabled one of the mirrors of the above-mentioned convex and the automobile equipped with the automatic inside electrochromic mirror acting as an automobilism person, and essentially carrying out perfect protection from the glare from the head lamp of consecutive vehicles as a mirror of the near outside of a driver, as a mirror of one of the above-mentioned even mirrors, and a pedestrian's near outside.

[0021] Only in chromium coating, it is difficult to make it clarification in assembly of the whole mirror, and it produces the mirror which is the final product in which the field and contamination spot of late cloudiness-izing and the rarefaction are shown. although use, high material of a reflection factor, for example, rhodium independent, become very expensive by the thickness which bring about low sheet resistance, cover the one or more layers top of the above-mentioned base coating like chromium produce the posterior part glass element which carry out clarification easily an assembly front, and it be optically perfect and obtain the mirror as a final product which moreover do not have the defect of contamination and cloudiness-izing. Only chromium or stainless steel considers the loss which the light from the covered front base with a transparent high-end reflection factor and electrochromic data medium of a mirror of a final product accompanies, and it has the problem of being too much low. The problem only by chromium is the stability of the inferior electric contact to spring clip type a conventional bus bar or other conventional electric contact means in the problem only by stainless steel, and a degree lower than it. Use of inactive high reflection factor coating carries out *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne. of the adhesion of a spring clip type bus bar or other electric contact means to stability further again, and it is made satisfactory [use]. That is because a non-conductivity compound and an oxide do not form as a surface of action under pressurization easily. The result of low electric contact of stability is a mirror which loses the transparency covering the long life demanded in the range, the speed, and the automobile industry of the homogeneity of coloring, and coloring.

[0022] Therefore, the extinction reflector glass of the strong low cost for automobiles is offered, and the mirror can be operated in the large harsh environment of the fluctuation in friction of sand and ballast in temperature, humidity, vibration, atmospheric corrosion, the spray of a salt, and an electronic failure list, and the mirror resists damage from abuse of an automobile accident and an owner. The advantage of the addition which produces the main fields of the mirror reflective object inside an extinction mirror element from carrying out a seal is the long life of the reflective object in the environment of an automobile. Making a resistance heater adhere to the reflexivity structure of the fourth surface of the reverse side of a posterior part glass base is made ordinarily for a lateral extinction mirror. Supposing these heater and its adhesives put together have in the background of a back glass base, the conventional reflexivity material, for example, silver, the problem of non-compatibility and a visual field will be produced. Combining an electrochromic mirror assembly with adhesives to the plastics reverse side plate often called a glasscase is performed ordinarily again. The normal temperature fluctuation experienced by this assembly will use the big force in the reflective object structure on the reverse side, i.e., the fourth surface, by the related mismatch of the thermal expansion of material. The adhesives used draw a chemical attack and deterioration of the reflective object of the fourth surface again. these problems -- a reflective object -- the inside of equipment -- being located -- and a heater -- the glass (the fourth surface) of a posterior part glass element -- or tin oxide coating, for example, TEK, which is in arbitration on the fourth surface 20 or TEK It can avoid, when adhering to 15 layers directly.

[0023] To current, a problem is produced in the conventional silver reflective object on the surface of the reverse side of posterior part glass, and these problems are known as silver damage and silver upheaval, and it is avoided with the multi-layer combination reflective object / electrode inside a mirror element, and is protected by posterior part glass. the factor on environment be restrict to what be produce from contact to the material of the offset field where electric contact be make , and an electrochromic data medium by the MACHIRU layer combination reflective object / electrode locate inside a mirror element , and especially the factor on the difficult environment of much others be the outside of an automobile , and on the other hand , it process about a reflective object by the reflective object on the reverse side of the posterior part glass surface so that it remain among the life of a mirror . The speed, the good high-end reflection factors (typically, by the external mirror, it is larger than 50%, and larger than 60% in an internal mirror), and low cost of coloring are requirements important for an extinction mirror, and the above-mentioned structure offers the mirror suitable for these requirements. Therefore, in order to make the mirror of such high performance that it is surprised, practical electrode coating

of low cost can be used comparatively. Conductive transparent high coating is in any of non-endurance, low permeability, and/or very high cost. It is desirable to use transparency coating which has disadvantageous profit of the proper lower than that of coating with those expensive conductance for this reason and which has the endurance of low cost comparatively. On the other hand, a metal is used and has very advantageous high conductance. The electrochromic mirror which has the reflective object / electrode containing the single metal layer on the front surface of a posterior part element is already described. However, the concept from which the electrical conductance of an electrode with the second transparent surface of a mirror element makes the extinction mirror made far low more nearly intentional than the multi-layer combination reflective object / electrode conductance of the third surface of a mirror element is desirable. This intentional mismatch of the conductance which has the relation of the symbiosis which uses coating of low cost in practice offers structure with a remarkable industrial possibility, its conductance of a transparent electrode is more substantially [than that of a multi-layer combination reflective object / electrode] low, and a multi-layer combination reflective object / electrode consists of coating more than two-layer. The first coating on posterior part glass is low cost and a high conductance base metal, for example, chromium, preferably. Coating as an end product on a MACHIRU layer combination reflective object / electrode is, in order to bring a high reflection factor and high stability to using it as an electrode for electrochromic equipments, the metal, for example, the rhodium, of a thin high reflection factor. coating of one or more layers on the surface of the reverse side of a front element -- color control coating of one or more layers -- although the tin oxide doped to the fluorine next is included, the thing for which coating with the arbitration more transparent than coating on the front surface of a posterior part element which has the demanded low property substantially with conductance will be suitable should understand. This concept is included in the electrochromic mirror of both inside which can contain the external world and a glare photosensor, and outside, or the glare photosensor was located after mirror glass and it removed, it sees through the portion of a mirror with the reflexivity material removed partially, or a glare photosensor is located in the outside on the surface of reflexivity. Independently, it is removed, the field 45 and 46, for example, each, of an electrode and a reflective object, or it is partially removed by the pattern of a dot, and he can see [a clock / the driver of vehicles can be transparent a vacuum fluorescence display, for example, a compass or a clock, and]. In order to measure both of the light of a glare and the external world again, only one video chip photosensor can be used for this concept, and it can apply it to the mirror which can determine the direction of a glare further. The automatic mirror inside vehicles can control the mirror of the outside of one piece or both as subordination equipment in an automatic mirror system again.

[0024] the aforementioned description -- moreover, it can apply to construction of the element for mirrors with which the greatest high reflection factor is desired, and electrochromic material may be a solution phase containing a liquid, gel, hard gel, and/or a polymer. The electrochromic material of some or all is not a solution, and it is applied especially to the electro-optics mirror acquired during actuation in respect of arbitration at those production processes that it is restricted on the surface of an electrode and dimmed further again. [than 10mA] [more] It is a hybrid design. The above-mentioned structure is transparent coating of the selected low cost, for example, Toledo, and Libbey of Ohio. It is especially effective when used with "TEK 20" marketed by Owens-Ford. The point of having excelled the automatic mirror by which current use is carried out and which is used most ordinarily is as follows. The mirror which has materialized the multi-layer combination reflective object / electrode Change a reflection factor early and it has the good color of an image in the condition of having the transparent image and not dimming it. It eliminates the need of placing silver reflexivity coating on the fourth [of a mirror element] surface, and inconvenient. A handling phase decreases more, lessen more an opportunity to give a flaw to glass during processing by that cause, and the last product which has better optical quality is brought about. And the surface along which light must pass will be lessened more, reflection of the first surface of the top and the third surface will become near mutually, and, as a result, a still fewer multiplex image and fewer distortion will exist in the mirror for drivers. Furthermore, when used as a lateral mirror, there is more little reflection from a raindrop and dust on the front surface of a windshield, and it is protected from the sudden fall and the physical misuse to the contamination in aging and atmospheric air which often affect the reflective object with which the reflective object on the surface of a front of a posterior part glass element was placed on the surface of the reverse side of a posterior part glass element.

[0025] In the mode of this invention drawn on drawing 1 -6, the windshield element 14 of the mirror of each outside is substantially curved slightly with comparatively big radius of curvature level by the radius of curvature of infinity. It is formed by one continuous piece containing main body part part 14B in the car. This curvature has [generally] the thing of the range of 1400 to 2600 mm in the radius of curvature of the range of 1200 to 3000 mm, and a pan and is spherical. Main body part part 14B is combined in one to un-spherical partial 14A outside the vehicle which has small radius of curvature more substantially than the radius of curvature of main body part part 14B. Therefore, non-ball-like partial 14A helps the planned large visual field more substantially than the visual field of only main body part part 14B, when combined with the visual field of main body part part 14B. The posterior part glass element 18 of the mirror of each outside of this mode of this invention is the same size as

substantially as main body part part 14B of a windshield element, and, moreover, un-spherical partial 14A has projected it outside in the longitudinal direction, i.e., the outside of the vehicle of both main body part part 14B and posterior part glass element 18. Since un-spherical partial 14A of the windshield element 18 is projected outside across the edge where the posterior part glass element 18 adjoins, un-spherical partial 14A of a windshield element is not dimmed when interior part of electro-optics vehicle 14B of a mirror dims. Moreover, the slant face slot shown with a slash in order to clarify depiction is used preferably, it extends the surroundings of the perimeter side of a windshield element, and hiding a part for the edge of the circumference of it should also understand.

[0026] The posterior part surface 36 of the windshield element 14 of the mirror of each outside is preferably covered with this mode of this invention by the reflexivity layer 38 only in the field of lateral un-spherical partial 14A. Although this reflexivity material cannot cover the portion 40 of the outside of a seal 16 preferably again and the portion 40 of the outside of a seal 16 cannot be seen to the driver of vehicles, if it is a request, some seals will be made intentional so that it may be visible to a driver, in order to offer the boundary for telling a driver about a difference existing in the configuration of a mirror. the non-globular shape formed of many radius of curvatures in which field 14A of the outside of the mirror of each outside is formed from the combination of the above-mentioned arbitration as already stated -- it is cylindrical and spherical or is in any of the thing of the configuration of other requests. It should also understand that a reflecting layer is on the front surface of un-spherical partial 14A. The above-mentioned structure conquers the meeting serious cost and the technical problem, when trying its best to match completely in the form of two glass of complicated curvature. Since it is in any of whether electro-optics partial 14B of the posterior part glass element 18 and the windshield element 14 is even, or to curve slightly, by attaining matching of those lapping portions still more easily, serious mismatching which produces a twin image is avoided, or becomes the minimum at least. Since un-spherical partial 14A of the front element 14 has moreover projected outside across the edge outside the vehicle of the posterior part glass element 18 and only one layer of glass exists in partial 14A of the shape of a non-ball of the mirror of each outside, any matching is not required. The deposition of the reflexivity layer 38, for example, chromium, or the rhodium is carried out on the posterior part surface 36 of partial 14A of the shape of a non-ball of the windshield element 14, and if a reflexivity layer, 22 [for example,,], is used as a reflective object again on the inner surface of the posterior part glass element 18 behind electrooptic material 24, since the electro-optics data-medium layer is very thin (generally 150 microns or less than [it]), the minimum discontinuity will exist in the reflected image When the light from reflection of the condition that the electrochromic portion of equipment was transparent measures by the layer 22 in contact with atmospheric air by the relation, he should understand that it is lower than the reflection factor of the first surface of a layer 22 10 to 20%.

[0027] It should also understand that the reflexivity layer, for example, silver, as a transparent conductor on the surface where a front and a posterior part glass element are faced in an indium stannic acid ghost (ITO) can be used on the reverse side of a posterior part glass element as an example. It is also possible to prepare a silver reflective object on the reverse side surface of partial 14A of the shape of a non-ball of a windshield in order to match. In the desirable mode of this invention, the layer of chromium or the layer of a rhodium forms the reflexivity layer 38 which was restricted to the non-ball-like field as drawn on drawing and which was prepared in the surface of un-spherical partial 14A of a windshield element. For example, the rhodium layer 22 can be used on the front surface of the thick reverse side glass element 18 by which deposition was carried out very much over the conductive chromium layer 20. As instantiation, although a rhodium layer has the thickness of about 100 - 700A, a chromium layer has the thickness of about 300 - 1500A. Independently, the monolayer of chromium can use with the monolayer of chromium on the surface 38 instead of the double layer of a rhodium and chromium. The monolayer of smooth ITO of permeability high moreover is desirable to application of a up to [the surface 36] in both of Fields 14A and 14B, and simplifies the ITO coating method, and makes reflection of 38 max, and makes cloudiness of the reflective object 38 the minimum. When the reflective object for the vehicle exterior is placed on a front an element 14 side, smoothing of the transparent conductor 36 is not important. And it is Libbey as "TEK 20" tin-oxide covering glass. Coating which bloomed cloudy or it was a little coarse, although it was the low cost currently sold by Owens-Ford, Or Libbey Except for [before being able to use Owens-Ford "TEK 15" glass or low cost tin oxide covering glass same type or applying a reflective object to field 14A] the transparent conductive layer of tin oxide. Therefore, if it is a request, it will carry out whether the transparent conductive coating 26 on the front element 14 is applied to homogeneity, or is applied alternatively, or it is removed from a part of surface 36 before application of the reflexivity layer 38, and, in the case of the latter, the reflexivity layer 38 will be directly applied on the posterior part surface 36 of an element 14. If the configuration of this latter of the reflective object of a front element has cloudiness with transparent conductive remarkable coating, it is especially desirable. Supposing it exists, it will also be desirable for it to be lower than the range of the reflection factor of an extinction portion, or to reduce the reflexivity of field 14A to the same value as it by the permeability of the layer 26 of field 14A or selection of a reflective object.

[0028] From the above-mentioned, many of peculiarity of this mode of this invention exists in the fact that only main body part part 14B of the front element 14 in the car will dim using the principle of electro-optics. By non-ball-like partial 14A not dimming, since a driver can see the vehicles with which the lane of in addition contiguity approaches, he performs protection from a glare, and this maintains safety. Moreover, the single front side of the windshield element 14 is made finely still more easily, and can remove the ice of winter. Furthermore, the field of one piece of a windshield element is smart on a fine sight. Moreover, those discontinuity can make the layer of reflexivity material very much at the same plane desirable for the driver of vehicles closely. the reverse side whole of the mirror assembly of each outside which contain a part for the un-spherical vehicle exterior of a mirror , and both for the interior of a vehicle who dim automatically with the heat with which it be the purpose of frost and ** and the conventional heater (not shown) finally spread by heat conduction to vehicle external part 14A -- or it should also understand that it can use for cover any of only the portion which dim automatically . It will be understood by the amount of [of a mirror] un-spherical vehicle exterior's bringing about the visual field which increased very much, and this removing a blind spot from the above-mentioned substantially that the mirror of the mode of this invention can replace both of the external mirror by the side of the near external mirror of the conventional driver or a driver, and a pedestrian. The mirror of the outside of the mode of this invention combines the even main field which has the main field of the convex which has the curvature of two types, i.e., big radius of curvature, and the radius of curvature of infinity, and the latter is similar to the near external mirror of the driver of the conventional U.S. with the un-spherical portion on the portion outside the vehicle of a mirror. Since the comparatively high curvature of an un-spherical field produces the visual field expanded very much and an un-spherical portion does not dim it to coincidence, the portion outside a bright vehicle sends the signal of risk, when other vehicles adjoin immediately the vehicles equipped with the mirror of the mode of this invention and it is located. If it is a request, as for the un-spherical portion of a mirror assembly, what will also be made low should understand reflexible capacity from the electro-optics-portion which it is thinly colored or a mirror does not dim.

[0029] The desirable arrangement which connects a conductive layer to a power supply is drawn about drawing 6 . In this arrangement, in order that two electrode content fronts and the posterior part glass elements 14 and 18 may bring about the field exposed on the front and the posterior part glass element, it turns only sideways from ** 13 and is arranged in the direction opposite in parallel. The conductive spring clips 42 and 44 are formed, and they are placed on the covered glass sheet, in order to consider electric contact as the field which the conductive layer exposed. A suitable conductor (not shown) is soldered to spring clips 42 and 44, or is connected by the other method, and desired voltage is applied to equipment from a suitable power supply. It is not indispensable to be a multi-layer, or for the combination reflective object / electrode which is not so to function as cathode of a circuit, and to be maintained such, although it is desirable. The reflector glass of the mode of this invention includes preferably the slant face slot 34 which has extended around the perimeter side of an assembly. The slant face slot 34 hides and protects a part for the surrounding edge of both front and posterior part elements 14 and 18 in spring clips 42 and 44 and a list. As instantiation, the slant face slot 34 both of the application It is transferred to the grantee of this invention. Further both of the application It is the application 07th / KONCHUNIESHON of No. 907055 which is quoted as reference here and for which it applied on July 1, 1992. William It is the thing of the type currently indicated by KONCHUNIESHON application of the application 08th for which it applied on October 29, 1993 of L.Tonar / coincidence application of No. 142875. an assembly -- or [moreover, / including the motor pack for remote control of the location of a mirror] -- or the plastics mirror back who suited so that a snap might be carried out to lateral mirror housing (not shown) which is the thing of the configuration of a request of the arbitration which is not included or a glasscase, and the conventional heater can be included. accommodation an inside mirror is supported inside an automobile in the way or the conventional way for which arbitration asks by lateral mirror housing being supported by the outside of an automobile in a request or the conventional way of arbitration, and according [the visual field of each mirror] to a hand by that cause -- or it can adjust with the driver of vehicles in the conventional way by the mechanical or electric means of a type conventionally formed in the current automobile. Other modes of this invention are drawn on drawing 7 , it carries out the mirror of each outside and performs a signal function, and penetrating only the spectrum with which the common-like signal light source located behind a mirror was chosen, the reflective object on partial 14A outside a vehicle is built so that most spectrums may be reflected. In another approach, although a reflective object is reflexivity generally, after decreasing it through the layer which it is partially made light transmission nature over a large spectral range, therefore is reflected partially, it needs the signal light of sufficient reinforcement to see with the vehicles to pass. In order to separate light from the eye of a driver, it is placed behind the surface of the mirror between the signal light source and a reflective object any of the sheet of a louver or the light guide film of plastics they are. The external world photosensor of an automatic internal mirror is used with the conventional control circuit (not shown), and a signal optical output is gradually decreased under the driving conditions of Nighttime which becomes dark gradually. A part for the vehicle exterior of the mirror of each outside where it is not expected that signal light shines and passes is

covered by arbitration with black or dark paint, and the interior behind a mirror reflective object is made not visible [part] on a day-ranges fine sight. In this mode of this invention, the dichroism reflective object of field 14A can be used with the light source with compatibility, the dichroism reflective object, for example, the red light emitting diode, which emits the specific spectrum wavelength of the band field of the reflective object of dichroism. Other possibilities of a dichroism reflective object and the light source which can be used are neon gas pipes, and the power supply for light emitting diode or neon tubes (not shown) is common knowledge for this contractor.

[0030] By the mirror reflected partially, the light source of the large band of arbitration can be used, although it can resist the environment of an automobile if it has the output and life of sufficient light, and if a color can approve for the safety signal of an automobile. When the light source of a fair or large spectrum is used preferably, colored another filter between the enclosures of a lamp, or the light sources and the reflective objects colored thinly is enough to bring about the output of suitable Orange or red. The color with the desirable output of the light which has the approach of a partial reflective object is Orange. The light source of the most practical low cost is the thing of the white heat type which can be changed, and includes the technology of high efficiency in which a halogen, a xenon, or other lives were extended. practical ** which a replacement bulb can obtain easily for service -- it is desirable to produce the light greatest at the minimum cost using the time light source. No matter what the light source may be used, it is desirable to use any of a lamp reflective object, a lens, or its both they are towards desired in order to increase the efficiency of the output of light. The lamp reflective object as used in the field of this case is clearly separated from the mirror reflective object on the vehicle external part of the mirror of the shape of a non-ball dimmed partially. as another approach -- the concept and the concept dimmed partially of this signal light -- moreover, it is substantially useful about the curved uniform mirror, for example, a convex mirror, and a part of mirror dims automatically in that case, and the portion outside a vehicle is not dimmed with the feature of the signal light behind the reflective object outside a vehicle.

[0031] In order to draw light so that it may emit from the signal light source and may separate from the visual field of a driver, laser can be used for cutting a louver pattern controllable to a plastics louver member effective in drawing light out of a mirror at a precision (combustion), therefore although it can be seen with other near vehicles of the vehicles equipped with the signal mirror, it cannot be seen with the driver of the vehicles which it had such. It is in any of whether a plastics louver sheet is extruded by common or to be fabricated by common, or it can be fabricated in the form curved so that the curve of a mirror might be suited. Being arranged in the method of bringing the greatest ratio on actual of the field opened wide to the laser cutting slot stopped at a certain point in order to be able to use laser or other suitable means for burning a slot at the angle which passes along a sheet plastic and for a slot to carry out the maintenance and support on sufficient structure will be understood. The rough side elevation of this mode of this invention moreover simplified is drawn there about drawing 7 . In this mode of this invention, the front reflective object 138 is formed on partial 114A of the shape of a non-ball of glass 114, and although the reflective object 138 has very high reflexivity preferably, it is transparent metal coating partially. However, in this mode of this invention, the amount of [of a mirror] vehicle exterior does not need to be un-spherical, and if it is a request, that the amount of vehicle exterior is even or curving should understand. If it is a request, reflexivity coating will be permeability substantially again and protective coating will be prepared on the conditions carry out light from after a mirror by that cause, and it is made to penetrate. The more the natural reflection factor of a front layer is high, the capacity at the sacrifice of the reflection factor to permeability becomes large, and, the more it goes into the range of the mirror reflection factor which can permit about 40 to 60%. A suitable reflective object is a rhodium, the covered aluminum, the covered silver, or other suitable different metals. A natural reflection factor carries out controlled thin thickness, and main points make about ten to 30% of signal light, and more than it transmit, and are so high that it is enough for in addition making about 40 to 60% of reflection factor attain. Although named 114 in drawing 7 in itself [glass], the plastics which has not bloomed cloudy is useful as an alternative.

[0032] Although the layer named 115 is visible to the vehicles by the side of it when it shines, it is a louver layer which equips the driver of the vehicles equipped with the mirror of the outside of the mode of this invention with the suitable signal pattern which can be checked as the turn or other signals which are not in sight. In the mode of this invention drawn on drawing 7 , the lens 117 of arbitration is formed so that light may be drawn efficiently. The signal light source 119 of the form of an LED array, one or more filament lamps, gas-charging lamp, for example, neon, or a xenon is established, and a reflective object or the reflective object array 121 is established so that the light emitted toward a lens 117 and/or a louver 115 from the light source 119 may be drawn. If it is a request, the mask of the transparent electrode heater and black which have not bloomed cloudy can be placed between a louver 115 and glass 114. A louver 115 will be pasted up on a base with adhesives next. In actuation of this mode of this invention, when giving energy to the signal light source, a turn or other signals can follow and can be seen only to the driver of other vehicles. The reflexivity surface of a mirror functions on coincidence in the conventional way. The concept of the above-mentioned signal is expandable with this invention so that the

mirror which is shown in drawing 8 and which is dimmed in electro-optics may be included. The electro-optics-assembly containing ** 213 which is formed with the posterior part glass element 218 which has the chromium and the rhodium layers 220 and 222 which penetrate light partially and conduct current on the front side although it is reflexivity, respectively and by which the seal was carried out generally named 210 is formed in the windshield element 214, the edge seal 216, and a list about drawing 8. Electro-optics data medium 224 which has desired electro-optics nature fills ** 213, and the one or more-layer transparent conductivity layer 226, for example, ITO, is formed on the rear face of a windshield 214. Although the louver layer 215 secured on the rear face of posterior part glass 218 is formed and a louver layer is visible to the vehicles by the side of it, it has to the driver of the vehicles equipped with the mirror of the outside of the mode of this invention, suitable signal pattern, for example, arrow, which can be recognized as the turn or other signals which are not in sight. This mode of this invention contains the lens 217 of the arbitration which draws light efficiently. The signal light source 219 of the form of an LED array, one or more filament lamps, gas-charging lamp, for example, neon, or a xenon is established, and a reflective object or the reflective object array 221 is established so that the light emitted toward a lens 217 and/or a louver 215 from the light source 219 may be drawn. If it is a request, the transparent electrode heater which has not bloomed cloudy can be placed between a louver 215 and posterior part glass 218, and a louver is fixed to a heater base by adhesives. Therefore, although a turn or other signals can follow and only the driver of other vehicles can see them in actuation of this mode of this invention when giving energy to the signal light source, the driver of the vehicles equipped with the mirror of the mode of this invention will look at the feature dimmed like electro-optics of a mirror.

[0033] Other modes of this invention are drawn on drawing 9. In this mode of this invention, a posterior part glass element is the same size as substantially as the windshield element containing that un-spherical portion, and the whole mirror containing that un-spherical portion has reversibly the capacity of the permeability which can be changed. The mirror of the outside generally named 111 is drawn about drawing 9. The mirror containing ** 113 which is formed with reflexivity, the conductive metal layer 122, and the posterior part glass element 118 that has metal undershirt coating arbitrarily and by which the seal was carried out of the outside generally named 111 is prepared in the windshield element 114, the edge seal 116, and a list. The tin oxide conductivity layer 126 which electro-optics data medium 124 which has desired electro-optics nature filled ** 113, and was doped, transparent conductive layer, for example, fluorine, is formed in the front element 114. A conductive layer is connected to an electrical circuit in the way mentioned above, and if it is a request, color control coating of one or more layers, 128 [for example,], will be arranged between the posterior part surfaces where the conductive layer 126 and the front element 114 adjoin. In this mode of this invention, the windshield element 114 has the radius of curvature of infinity, is substantially even or is formed in one continuous piece containing main body part part 114B in the car which has comparatively big radius of curvature and it curves slightly. Main body part part 114B is combined with un-spherical partial 114A outside the vehicle which has small radius of curvature more substantially than the radius of curvature of main body part part 114B in one. Therefore, un-spherical partial 114A is more substantially [than the visual field of only main body part part 114B] large, when it contributes to the planned visual field and is combined with the visual field of main body part part 114B. The posterior part glass element 118 of the mirror of this mode of this invention is the same size as substantially as the windshield element 114, and contains un-spherical partial 118A of the same size in the same main body part part 118B of size, and a list substantially with main body part part 114B of a windshield element as substantially as un-spherical partial 114A of a windshield element.

[0034] In this mode of this invention, the reflexivity surface inside posterior part glass 118 is the same as the type of the above-mentioned multi-layer combination reflective object / electrode which forms the whole electrode which works as a mirror reflexivity layer and contacts electrochromic data medium again. It consists of a metal layer combination reflective object / single electrode, or a series of single coating. Other electrodes on the surface inside a windshield 114 are the same as the aforementioned transparent electrode 26 in contact with electrochromic data medium inside a mirror element. The multi-layer combination reflective object / electrode of this mode of this invention Therefore, it can function in the same way and the same result as the above-mentioned multi-layer combination reflective object / electrode can be obtained. The transparent electrode on the surface inside a windshield 114 also functions in the same way, and a difference [in / the same result as the above-mentioned transparent electrode can be obtained, and / this mode of this invention] A multi-layer combination reflective object / electrode, and a transparent electrode are that the portion of the shape of a non-ball of a mirror is included, and it will be understood that ***** 113 in which a seal 116 contains the un-spherical portion of a mirror and which has extended at the left end of mirror structure as drawn on drawing 9 is included. Therefore, the mirror containing the un-spherical portion of a mirror whole [111] has reversibly the penetrability force which can be changed, and the whole mirror functions in the same way as main body part part 14B of the mode of this invention drawn on drawing 1 -6 in the car. Although the desirable mode of this invention was drawn and it was described, it will be understood that various change and alterations are made without separating from the meaning of this invention.

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PRIOR ART

[Description of the Prior Art] To current, the various automatic reflector glasses of an automobile are devised, and they are the purposes which protect the glare (glare) from the light emitted from the headlight of the vehicles which approach from back, and change from total reflection factor mode (day ranges) to partial reflection factor mode (Nighttime) automatically. It is published on February 20, 1990 and is single compartment and self-elimination, Solution phase electrochromic (electrochromic) equipment, U.S. Pat. No. 4902108 concerning the use to the solution list used for it, U.S. Pat. No. 4917477 are published on April 17, 1990 and concerning the automatic reflector glass system of an automobile, U.S. Pat. No. 5128799 are published on July 7, 1992 and concerning an adjustable reflection factor automobile mirror, U.S. Pat. No. 5202787 are published on April 13, 1993 and concerning an electro-optic device, U.S. Pat. No. 5280380 are published on January 18, 1994 and concerning an ultraviolet-rays stabilization constituent and a method, And the electrochromic mirror which is published on January 25, 1994 and is indicated by U.S. Pat. No. 5282077 about an adjustable reflection factor mirror (each of these patents) it is transferred to the grantee of this invention, and these the indication of each is quoted as reference here -- having -- the automatic reflector glass of the latest day ranges about an automobile is typical. These electrochromic mirrors are used by the reflector glass system of the inside/outside unified completely, or can be used as a reflector glass system of the inside or an outside. Generally, at the automatic reflector glass of the type indicated by United States Patent 4902108th, 4917477, 5128799, 5202787 and 5280380, and No. 5282077, the reflector glass of both inside and outside consists of comparatively thin electro-optics data medium by which was sandwiched between the glass elements of two sheets, and the seal was carried out. In most cases where electric energy is given to electro-optics data medium, as it becomes dark, and begins to absorb light and voltage becomes high further, a mirror becomes darker. or [that voltage falls to zero] -- or when removed, a mirror returns to the condition of having been transparent. Moreover, the approach cover with the solution which generally contains other compounds at least in order that other electro-optics data medium can be use and the electrochromic layer of tungstic oxide may offer a counterelectrode reaction although electro-optics data medium by which was sandwiched and the seal was carried out between the glass elements of two sheets consists of a solution of the electrochromic compound which functions as data medium of the adjustable permeability in a mirror preferably on one electrode is include. The reflector glass of the feature directed when operated automatically is equipped with an optical sensitivity electronic circuitry effective in generally, changing a mirror to the reflection factor mode by which extinction was carried out, when a glare is detected, and sandwiched electro-optics data medium is activated, and a mirror is dimmed according to the amount of the glare detected. A mirror returns to the condition of the normal high reflection factor automatically in the direction of the driver of an automobile, without requiring what kind of activity as a glare subsides. Electro-optics data medium is arranged at ** which is formed with the reflector glass element which has a transparent windshield element, a surrounding edge seal, and a reflexivity layer and by which the seal was carried out, and electro-optics data medium occupies **. Although a conductive layer is put inside the element of a windshield and a back glass and the conductive layer on a windshield element is transparent, As the conductive layer on a back glass element is transparent or it is opaquely indicated by aforementioned United States Patent at details the conductive layer on a back glass element It can function as a reflexivity layer for a back glass element. Moreover, and the conductive layer on both windshield element and back glass element When it switches to the mode with which the reflection factor of Nighttime decreased the mirror when a glare is detected, and then a glare subsides, in order to carry out a mirror and to make it return to the mode in which the reflection factor of day ranges is high, it connects with an electronic circuitry effective in giving energy electrically to electro-optics data medium. In order to clarify description of this structure, occasionally use the front surface of a windshield element as the first surface below, and, occasionally let the surface inside a windshield element be the second surface. Occasionally use the surface inside a back glass element as the third surface, and, occasionally let the surface of the back of a back glass element be the fourth surface.

[0003] Application under application of the applicant entitled "the reflector glass for automobiles made gloomily" if it was a request (the application) The description of all as it is transferred to the grantee of this invention and indicated by being quoted as reference here at details a reflexivity layer It can be provided on the inside (the

third surface) of the back glass of the extinction (dimming) portion of a reflector glass. The layer consisting of a series of coating called a multi-layer combination reflective object / electrode to below, it forms the perfect electrode which contacts electrochromic data medium again. other electrodes on the surface inside a windshield (the second) -- moreover, it is a transparent electrode in contact with electrochromic data medium inside a mirror element. A series of coating of a multi-layer combination reflective object / electrode, Combine with the glass surface firmly, and resist the corrosive action of the material in electrochromic data medium, and even if few, basic coating, A list is contacted electrochromic data medium and directly. And the high reflection factor and the stable property as an electrode, The resistance over the corrosion by the material of electrochromic data medium, the resistance over atmospheric corrosion, It consists of over coating of the reflexivity mainly chosen about the ease cleaned to the electrode surface of the capacity to adhere to the resistance over electric contact corrosion, and basic coating, and the high quality which is not polluted. Transparent coating is the indium oxide (ITO) or a series of metallic-oxide coating which were doped with the tin oxide doped with the fluorine which has basic coating which suppresses preferably the color and reflection accompanied by transparent coating of the conductivity which contacts directly to electrochromic data medium, and tin. When a series of transparent coating is used, material is chosen about the resistance to good association and the corrosion by the material of electrochromic data medium, the resistance to the corrosion by atmospheric air, the minimum reflection factor, high light transmission, the color near colorlessness, and high conductivity. Moreover, a reflexivity electrode can be made a remarkable degree, conductivity can be made very high, and it compensates with a conductive low transparent electrode and a multiplication-way, and it has the optical property which was excellent as a result, becomes dark, and becomes the electrochromic mirror which is already transparent in homogeneity also in whether it is a comb possible [permission].

[0004] This multiplication-structure is applicable to the reflector glass of both the inside for automobiles, and an outside. It is it when a multi-layer combination reflective object / electrode is used by the mirror of arbitration, It has the advantage of the proper which decreases the multiplex image by the raindrop, dust, etc. in a twin image, distortion, and a list, and a low-end reflection factor low enough is brought to mitigating a glare strong against the good homogeneity of change of the reflection factor covering the surface of the speed which was further excellent in change of a reflection factor, a good high-end reflection factor, and a mirror, the color near colorlessness, the reflection factor that can change continuously, and a list. Although reduction of a twin image and distortion is bent, for example, it uses the glass which has the slight fluctuation, few waves, or camber in the radius of curvature which produces few defects although two pieces of vent glass required of making a convex electrochromic mirror is set. Especially in the case of an extinction mirror, it is useful.

[0005] The external reflector glass of the aspheric surface which cannot be dimmed automatically which eliminates most blind spots of common knowledge of the external mirror of the increase of a field of view and the conventional optical flats of the driver of an automobile, and/or curved surface glass to current has been offered. generally many radius of curvatures are used for the mirror of the aspheric surface -- or it is manufactured by combining the main curved fields which have the same fixed radius of curvature as the mirror of the convex ordinarily used for the external mirror of the main flat fields (radius of curvature of infinity), or the pedestrian side in the U.S. recently with the aspheric surface field arranged at the portion besides the curvature of the type of 23, i.e., the vehicle of a mirror. Generally, the high curvature in an aspheric surface field produces the visual field which is that [about 3 times] of the mirror of the twice [about] and the flat surface of that of a convex mirror and which was expanded very much. Therefore, the mirror of the aspheric surface is useful to making a lane change, observing the vehicles, for example, the automobile, two-wheel barrow, and bicycle of the others which are made to look at the lane where the driver of an automobile is carried out by that cause, and a road adjoins, and are running the adjoining lane except for the so-called conventional blind spot. However, when doing one's best in the back (the fourth) surface of a posterior part glass element to assemble the aspheric surface outside reflector glass which has a reflexivity layer and which is dimmed automatically, serious cost and a technical problem arise. That is because it is generally required to double very closely the curvature of the glass element of two sheets of complicated curvature occasionally called "the twins who matched" in this industry. A glass element produces a twin image in a mismatch, and it is a question whether the mirror of the aspheric surface without the twin image which has a reflexivity layer on the fourth [of current and a mirror element] surface and which is dimmed automatically can manufacture industrially from a viewpoint in practice and/or economically. However, when a multi-layer combination reflective object / electrode is used inside the aspheric surface portion of the reflector glass which is assembled according to this invention and which can be dimmed (the third surface), such a good result that is not expected is obtained that it is moreover surprised. The advantage which includes a directional light or other signals, for example, a brake signal, in each of the mirror of the outside of an automobile to current is recognized. It was published on May 7, 1991, and was published on U.S. Pat. No. 5014167 about a visible signalling device, and May 4, 1993, and U.S. Pat. No. 5207492 about a mirror assembly has described a mirror to which a signal indicator is located in the back on the surface of a mirror. It is hidden from the field of view of the operator of an automobile by special use of a dichroism reflective

object, the light source, and a direction louver means, these signals, for example, directional light, therefore a visual field is not made to block, a signal being visible to the vehicles which pass consecutive vehicles or which side in addition. The vehicles located in the blind spot which has an advantage in remainder ahead and cannot see the directional light of the conventional posterior part are receiving warning of **** vehicles' just bending. These mirrors are increasingly known for this industry as a "signal mirror." To current, the signal mirror was not industrially successful especially for the difficulty of the proper which combines cost, a technical issue and this feature, and the mirror dimmed automatically.

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3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] Other purposes of this invention can change from the high reflection factor mode to partial or low reflection factor mode for the purpose of glare protection of a portion of a mirror in the car. On the other hand, supposing a portion outside a vehicle of a mirror is in near on a lane which other vehicles adjoin also under a glare generation condition It is always in offering an aspheric surface outside reflector glass which is still the mode of a high reflection factor and with which it has been improved for automobiles so that a signal of potential risk/warning may be brought about. Other purposes of this invention are to offer an extinction reflector glass with which it has been improved for [which brings about a larger visual field than the conventional flat or a convex extinction outside reflector glass] automobiles. Other purposes of this invention have a comparatively economical mirror in manufacture and assembly, and it is to offer [endurance and] efficient and an extinction reflector glass of electro-optics which can perform actuation of reliability and with which it has been improved for automobiles. Other purposes of this invention are to offer an improved signal means related to an outside reflector glass with which it has been improved for automobiles. The purpose of still others of this invention offers a signal means improved in a portion outside a vehicle of a mirror dimmed partially, and technical difficulty of it is lost by that cause, and it is for cost to decrease. Other purposes of this invention are to offer an extinction reflector glass with which it has been improved the good homogeneity of change of a reflection factor of the whole surface of speed which multiplex images by raindrop decreased in number in a twin image, distortion, and a list, and was excellent in change of a reflection factor, a good high-end reflection factor, and a mirror, a color near colorlessness, a reflection factor changed continuously, and for [from which a low-end reflection factor is obtained good] automobiles. Other purposes and advantages will become clear from the following description, an example, a claim, and drawing at the above-mentioned list of this invention.

[0008] Drawing 1 is front view which explains roughly a reflector glass system of the inside/outside for automobiles, it can suit so that those all may be install in an automobile in the conventional way including an extinction inside reflector glass with an extinction outside reflector glass of two sheets with which a system has embody this invention, and a mirror can face a posterior part of vehicles by that cause, and it can see with a driver of vehicles, and a back visual field can be bring to a driver. Drawing 2 is expansion and an easy cross section of an inside reflector glass which were taken by the Rhine 2-2 and which were drawn on drawing 1 . Drawing 3 is the exploded view of a partial extinction outside reflector glass of the aspheric surface of electro-optics of left drawn by drawing 1 . Drawing 4 is the front view of a mirror drawn on drawing 3 . Drawing 5 is a plan where a mirror drawn on drawing 4 is easy. Drawing 6 is the easy side elevation on the right-hand side of a mirror which can be seen by drawing 4 which shows electro-optics structure. Drawing 7 is the rough side elevation of other modes of this invention easy moreover. Drawing 8 is the rough side elevation of other modes of this invention easy moreover. Drawing 9 is the rough plan of other modes of this invention easy moreover. [0009] electro-optics data medium by which the seal of some [at least] reflector glass assemblies was generally carried out between glass elements of two sheets at a reflector glass of the inside of a mode of this invention, and an outside -- it will consist of a film comparatively. A mirror becomes dark as it becomes dark, and it begins to absorb light and voltage goes up, when electro-optics data medium is energy-ized electrically. or [that voltage falls to zero] -- or when removed, electro-optics data medium returns to the condition of having been transparent. A reflector glass of a mode of this invention is the thing of a type which is published by aforementioned United States Patent 4902108th, 5128799 and 5202787, No. 5280380 or 5282077, and list on May 7, 1991, is published on U.S. Pat. No. 5014167 about a visible signalling device, and May 4, 1993, and is indicated by U.S. Pat. No. 5207492 about a mirror assembly. However, it should understand that electro-optics data medium and other components, which are an electronic circuitry of other types and other types, can use for a mirror of a mode of this invention.

[0010] In one mode of this invention, although a flat field where a mirror is big, and/or a field of a big convex of radius of curvature are dimmed automatically, an outside reflector glass of the aspheric surface which a portion of the aspheric surface of a mirror does not have is offered. Main aspects of affairs of this mode of this invention have a windshield element in a fact which is formed in a part for the main body part in the car which it curves level or slightly substantially, and a list at a part for the main body part, and one, and is formed with one

continuous components containing an aspheric surface portion outside a vehicle moreover projected in a longitudinal direction outside from it. Although a lateral mirror has a part for the interior of a vehicle of a spherical convex of big radius of curvature combined with an aspheric surface portion outside a vehicle, and one in the most practical form, the amount of interior of an extinction vehicle is the thing of a flat or other configurations, and it will be understood that it is the thing of a configuration cylindrical [an aspheric surface portion] or spherical, or can form with many radius of curvature or other configurations.

[0011] A mirror assembly of the inside/outside of electro-optics of a mode of this invention generally named 9 is drawn on drawing 1 -6 about drawing. Since some of each layer of a mirror of an assembly 9 is very thin, a scale is changed in order to make a picture clear. The mirror assembly 9 contains the lateral mirrors 11 and 12 in inside mirror 10 list as shown in drawing. In order to make it clear, although the same numbers differ slightly in a configuration, they function in the same way substantially and obtain the same result as a component taught similarly by a diagram. A component of a mirror of the inside and an outside is clarified. For example, a configuration of a windshield element of a mirror of a left outside is the reverse of a configuration of a mirror of a right outside, and a windshield element of an inside mirror is narrow generally for a long time than a windshield element of a lateral mirror. Although drawn, in a mode, each of mirrors 10, 11, and 12 contains ** 13 which is formed with the windshield element 14, the edge seal 16, and the posterior part glass element 18 which have reflexivity and the conductive metal layers 20 and 22, respectively and by which the seal was carried out. The tin oxide conductivity layer 26 which electro-optics data medium 24 which has desired electro-optics nature filled ** 13, and doped, transparent conductive layer, for example, fluorine, is owned with the front element 14. A conductive layer is connected to an electronic circuitry so that it may be described by details below. If it is a request, color control coating of one or more layers, 28 [for example,], will be arranged between the posterior part surfaces where the conductive layer 26 and the front element 14 adjoin. Light passes along the windshield element 14, the color control coating (an unit or plurality) 28, the transparent conductive layer 26, and electro-optics data medium 24, before being reflected from the layer 22 (or supposing a layer 22 is very thin layers 20 and 22) of conductivity established on the posterior part glass element 18, and reflexivity. Reflected light comes out by the same general way crossed towards reverse. By electrochromic data medium, both incident ray and reflected ray decline according to a degree to which electro-optics data medium 24 is absorbing light, and, on the other hand, in some case, light is decreased in one direction by other electro-optics data medium. When electro-optics data medium 24 is moreover very light absorption nature in electrochromic one, reinforcement of light which comes out decreases and an extinction image which remains is mainly from light reflected in a front face of the windshield element 14, and a list from an interface between the windshield element 14, coating 28, and/or 26. Therefore, a fundamental structure element of each electro-optics portion of a mirror Two an electrode content side or walls 14 and 18, spacings, or the separation seals 16 (in assembled equipment, detach a wall mutually in an parallel relation substantially, and it holds) capacity currently formed with the equipment furthermore assembled by the wall 30 inside [of the surface inside an electrode layer on an electrode content wall, and the seal member 16] surrounding -- surrounding -- it contains. here where capacity of ** 13 is desirable and it has reversibly permeability which can be changed in actuation of equipment -- or a thing of arbitration of electro-optics data medium indicated in the above-mentioned patent is filled up through the restoration hole 32 in which a seal is possible, and data medium in ** 13 contacts both of the electrode layers 22 and 26 during actuation of a mirror. Probably, it turns out that electro-optics data medium for attaining a reflection factor which can be changed may be the thing of the above-mentioned arbitration in other solution phase erection potter's wheel mixes, a solid-state erection potter's wheel mix, two combination of a hybrid form, or a matrix by which the polymerization was carried out. Liquid crystal, a bipolar suspended solid, or other electro-optics data medium could be used by mirror of a mode of this invention.

[0012] In a mode of drawn this invention, the reflexivity surface inside posterior part glass 18 consists of a series of coating called a multi-layer combination reflective object / electrode to below, they work as a mirror reflection factor layer, and an one-electrode which contacts electrochromic data medium again is formed. Other electrodes on the surface inside a windshield 14 are the transparent electrodes 26 which contact electrochromic data medium inside a mirror element again. A series of multi-layer combination reflective object / electrode coating consist of base coating which combines with the glass surface firmly and resists corrosive action of material in electrochromic data medium. Preferably, although base coating is chromium, it may be material or a series of coating of arbitration which attains stainless steel, nickel chromium, titanium, gold, silver, or the above-mentioned purpose independently. Thickness of base coating is 100 - 1500A generally, and is 200 - 800A further generally. Reflexivity coating of the last which contacts electrochromic data medium and directly is mainly chosen as the high reflection factor, resistance over an attack by electrochromic data medium, resistance over atmospheric corrosion, resistance over electric contact corrosion, and a list about capacity to adhere to base coating. It should understand that it is independently possible to choose out of a group which was limited to these although desirable material about reflexivity coating consisted of a multiple layer which includes metals and those alloys, for example, platinum, a ruthenium, iridium and stainless steel, or such combination although it

is the rhodium which has outstanding hardness, an outstanding reflection factor, and outstanding conductivity and which is not. Thickness of reflexivity over coating is 100 – 1000A generally, and is 100 – 600A further generally. A series of coating of this multi-layer combination reflective object / electrode has over coating of one or more layers which brings an additional conductive and high reflection factor to base coating of one or more layers and a list which bring about a high reflection factor generally. As an example, the sheet resistance of a multi-layer combination reflective object / electrode is about 1 – 10 ohms per square.

[0013] The transparent coating 26 is made from a series of coating which has base coating of one or more layers which controls preferably a color and reflection accompanied by transparent coating of tin oxide doped with a fluorine, ITO, or conductivity which contacts electrochromic data medium and directly independently. When a series of transparent coating is used, material is chosen about good resistance over good association and corrosion by material in electrochromic data medium, resistance over corrosion by atmospheric air, the minimum reflection factor, high light transmission nature, an almost colorless color, and high conductivity. A suitable low transparent electrode covering glass base of cost of a type is Toledo and Libbey of Ohio. Although it is "TEK 20" currently manufactured by Owens-Ford or "TEK 15", other suitable coating is ITO or the very thin metal layer which can function as a transparent electrode independently. Transparent electrode material is restricted to balance of a property and cost in proper. In low permeability and a list, it blooms cloudy, and coating with low transparent sheet resistance which has sheet resistance lower than about 10 ohms per square has a defect which possible others containing non-homogeneous and high cost of thickness of coloring and coating accompany, and is a victory. This does not make coating with low transparent sheet resistance more practical about an electrochromic mirror. An electrochromic mirror which becomes dark and is transparent at early and homogeneity to a remarkable degree, it being possible to make low electric resistance of a multi-layer combination reflective object / electrode, and having the optical character which was excellent as a result, so that it is permissible over a field of the surface in order to compensate a synergism by transparent electrode with high electric resistance is obtained.

[0014] It is per [3 / about] square [which has about 18 – 22 ohms per square or a front transparent electrode beyond it in which such a good result that an electrochromic mirror is surprised about speed of coloring and transparency and homogeneity is shown in order to prove a surprising property of multiplication nature]. – It is constituted by the multi-layer combination reflective object / electrode of about 7-ohm sheet resistance. although an electrochromic mirror which has a reflective object on the front surface of a posterior part element is already described -- ***** -- an ease of cleaning for good adhesion on a high reflection factor and glass, low sheet resistance, and an electrochromic mirror -- bringing -- transparency of the high resistance of especially low cost -- coating and ***** -- use of multi-layer coating to require is desirable. Therefore, if it is a request, in order to attain an electrochromic mirror of effective high performance in cost, the multi-layer combination reflective object / electrode of high conductivity on the third surface which has a front electrode with low transparent conductivity on the second surface can be used for a mirror of a mode of this invention. This multiplication-structure has an advantage of a proper which decreased a multiplex image from a raindrop in a twin image, distortion, and a list (mirror curved especially the shape of a convex or a ball), and provides with a low-end reflection factor low enough softening a glare strong against the good homogeneity of change of a reflection factor covering a field of speed which was excellent in change of a reflection factor on the other hand, a good high-end reflection factor, and equipment, an almost colorless color, and a list.

[Translation done.]

*** NOTICES ***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EXAMPLE

[Example] The following is the example of the component understood used and are suitable for the reflector glass of the mode of this invention, and it will be understood that other components can be used for the reflector glass of the mode of this invention.

[0016] Example The 1 multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 300A titanium, about 200A gold, and about 200A platinum one after another on a sheet with a thickness [of the 6.6cmx14.4cm surface of a soda lime float glass] of 0.2cm. Deposition was attained by rotating the glass sheet which passes along three separate metal targets by the magnetron sputtering system with the base pressure of 3×10^{-6} torr, and the argon pressure of 2×10^{-6} torr. SAE The white light reflection factor of the CIE curve of the first surface from a multi-layer combination reflective object / electrode which has the platinum surface in contact with air measured according to the way of J964 was 71.9%, and the sheet resistance of a metal layer was 3.2 ohms per square. This multi-layer combination reflective object / electrode covering glass were used as a posterior part element of electrochromic mirror equipment. A front element is TEK of the same size as a posterior part element. It was the sheet of the transparent electric conduction object covering glass of 20. The transparent sheet resistance of an electric conduction object was about 20 ohms per square. As shown in drawing 2, two elements faced mutually and were combined with both epoxy circumference seals with the transparent electric conduction object electrode offset substantially in parallel, and the multi-layer combination reflective object and / electrode. The inter-electrode gap was about 0.014cm. The inside of 3% of the weight of the solution of Elvacite(trademark) 2041 polymethylmethacrylate resin by which equipment was dissolved in polyethylene carbonate, 0.034-mol 5, 10-dihydro - 5, 10-dimethyl phenazine, 0.034-mol 1, 1'-JI (phenylpropyl) -4, 4'-bipyridinium difluoro borate, 0.5-mol ethyl-2-cyano - Vacuum filling was carried out through the small gap left behind to the circumference seal with 3 and the solution which consists of 3'-diphenyl acrylate. The small crevice was closed by the ultraviolet curing adhesives hardened by putting to ultraviolet rays. The reflection factor (it measured like [element / posterior part / former]) of the equipment when not applying voltage was 56%, and when 1.2 volts was bet, the reflection factor fell to 10% in 5 seconds, and fell to 7.5% within 10 seconds. When equipment was short-circuited, in 15 seconds, the reflection factor increased to 56% and returned.

[0017] Example 2, especially except stating, the conditions of an example 1 were used by this example. The multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 300A chromium, about 500A silver, and about 300A platinum one after another with the base pressure of 3.7×10^{-6} torr, and the argon pressure of 8×10^{-6} torr. The reflection factor of the first surface was 73.3%, and sheet resistance was 0.1 ohms per square. When building electrochromic mirror equipment with this multi-layer combination reflective object / electrode, equipment has 57.0% of high-end reflection factor, and 6.5% of low-end reflection factor, and changed with 1.2-volt application from 57.0% to 10.0% in 2.0 seconds.

[0018] Example 3, especially besides stating, the conditions of an example 1 were used by this example. The multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 600A chromium and about 300A platinum one after another. It was 8×10^{-6} to 3×10^{-6} torr in a 2.1×10^{-6} to 6×10^{-6} torr base pressure, and argon pressure. The reflection factor of the first surface was 73.8%, and sheet resistance was 3.2 ohms per square. When electrochromic mirror equipment was built with this multi-layer combination reflective object / electrode, equipment has 58.0% of high-end reflection factor, and 7.0% of low-end reflection factor, and changed with 1.2-volt application from 58.0% to 10.0% in 2.7 seconds.

[0019] Example The 4 multi-layer combination reflective object / electrode was manufactured by carrying out the deposition of about 600A chromium and about 100A 316 stainless steel one after another on a convex with a circle diameter [of the glass bent with a press to the uniform spherical curvature which has the radius of curvature of 140cm in a list] of 22cm on the sheet with a thickness [of the 19cmx66cm surface of an even soda lime float glass] of 0.2cm. The bent glass is Toledo and Libbey of Ohio. TEK currently manufactured by Owens-Ford It was 20 tin-oxide covering glass, and tin oxide coating was on the concave surface, after glass was bent. Deposition was attained by the big in-line sputtering system. The reflection factor of the first surface from a multi-layer combination reflective object / electrode was about 58%, and sheet resistance was about 7

ohms per square. The even glass sheet $\times\times$ (ed) and bent was cut in the configuration of the mirror which are a height of about 10cm, and width of face of 16cm. These were used as a posterior part element of the extinction mirror of the outside of an automobile as follows. As compared with the glass covered only with the chromium metal, they are electrochromic extinction mirror equipment as a final product, and clarification of these pieces of a multi-layer combination reflective object / electrode covering glass was dramatically carried out to the conditions which function as an electrode of high quality uniform without the spot colored unsavorily and a flaw easily. a multi-layer combination reflective object / electrode covering glass is even $\times\times$ and a convex piece is even respectively $\times\times$ (ing) $\times\times$ TEK of convex covering glass The piece of the shape of a mirror of 20 covering piece was matched. It was bent as the convex mirror glass of a front element also had tin oxide coating on a concave surface. Mirror equipment is TEK. It was made by carrying out the seal of most circumferences of a glass piece altogether with the epoxy resin seal content glass bead spacer which brings about the gap of 0.015cm between 20 transparence tin oxide electrode, and a multi-layer combination reflective object / electrode. The gap between electrode surfaces is 5 [0.028-mol] in the solution of 3% of the weight of the Elvacite(trademark) 2041 polymethylmethacrylate resin dissolved in polyethylene carbonate, and 10-dihydro. $\times\times$ It is 1, 1'-JI (phenylpropyl) -4 and 4'-bipyridinium difluoro borate (5, 10-dimethyl phenazine, and 0.034 mols), and 2 [0.030-mol]. $\times\times$ (2'- hydroxy-5'-methylphenyl) $\times\times$ It filled up with the solution which consists of The high-end reflection factor of a mirror was about 45%, and the low-end reflection factor was about 7%. The mirror changed the reflection factor to 15% from 45% in about 5 seconds, and brought about relaxation of the glare which was excellent when dimming the level of a reflection factor suitable during the driving of Nighttime.

[0020] Example All the ways of an example 4 were repeated except the 5 multi-layer combination reflective object / electrode having been manufactured by the sequential deposition of about 400A chromium and about 200A rhodium. The reflection factor of the first surface from a multi-layer combination reflective object / electrode was about 70%, and sheet resistance was about 7 ohms per square. according to the way of an example 4, it was manufactured with this multi-layer combination reflective object / electrode $\times\times$ even $\times\times$ (ed), convex extinction mirror equipment had about 55% of high-end reflection factor, and about 7% of low-end reflection factor, and the speed of change of a reflection factor was the same as that of the mirror of an example 4. The drive of Nighttime was enabled one of the mirrors of the above-mentioned convex and the automobile equipped with the automatic inside electrochromic mirror acting as an automobilism person, and essentially carrying out perfect protection from the glare from the head lamp of consecutive vehicles as a mirror of the near outside of a driver, as a mirror of one of the above-mentioned even mirrors, and a pedestrian's near outside.

[0021] Only in chromium coating, it is difficult to make it clarification in assembly of the whole mirror, and it produces the mirror which is the final product in which the field and contamination spot of late cloudiness-izing and the rarefaction are shown. although use, high material of a reflection factor, for example, rhodium independent, become very expensive by the thickness which bring about low sheet resistance, cover the one or more layers top of the above-mentioned base coating like chromium produce the posterior part glass element which carry out clarification easily an assembly front, and it be optically perfect and obtain the mirror as a final product which moreover do not have the defect of contamination and cloudiness-izing. Only chromium or stainless steel considers the loss which the light from the covered front base with a transparent high-end reflection factor and electrochromic data medium of a mirror of a final product accompanies, and it has the problem of being too much low. The problem only by chromium is the stability of the inferior electric contact to spring clip type a conventional bus bar or other conventional electric contact means in the problem only by stainless steel, and a degree lower than it. Use of inactive high reflection factor coating carries out *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne. of the adhesion of a spring clip type bus bar or other electric contact means to stability further again, and it is made satisfactory [use]. That is because a non-conductivity compound and an oxide do not form as a surface of action under pressurization easily. The result of low electric contact of stability is a mirror which loses the transparency covering the long life demanded in the range, the speed, and the automobile industry of the homogeneity of coloring, and coloring.

[0022] Therefore, the extinction reflector glass of the strong low cost for automobiles is offered, and the mirror can be operated in the large harsh environment of the fluctuation in friction of sand and ballast in temperature, humidity, vibration, atmospheric corrosion, the spray of a salt, and an electronic failure list, and the mirror resists damage from abuse of an automobile accident and an owner. The advantage of the addition which produces the main fields of the mirror reflective object inside an extinction mirror element from carrying out a seal is the long life of the reflective object in the environment of an automobile. Making a resistance heater adhere to the reflexivity structure of the fourth surface of the reverse side of a posterior part glass base is made ordinarily for a lateral extinction mirror. Supposing these heater and its adhesives put together have in the background of a back glass base, the conventional reflexivity material, for example, silver, the problem of non-compatibility and a visual field will be produced. Combining an electrochromic mirror assembly with adhesives to the plastics reverse side plate often called a glasscase is performed ordinarily again. The normal temperature fluctuation

experienced by this assembly will use the big force in the reflective object structure on the reverse side, i.e., the fourth surface, by the related mismatch of the thermal expansion of material. The adhesives used draw a chemical attack and deterioration of the reflective object of the fourth surface again. these problems -- a reflective object -- the inside of equipment -- being located -- and a heater -- the glass (the fourth surface) of a posterior part glass element -- or tin oxide coating, for example, TEK, which is in arbitration on the fourth surface 20 or TEK It can avoid, when adhering to 15 layers directly.

[0023] To current, a problem is produced in the conventional silver reflective object on the surface of the reverse side of posterior part glass, and these problems are known as silver damage and silver upheaval, and it is avoided with the multi-layer combination reflective object / electrode inside a mirror element, and is protected by posterior part glass. the factor on environment be restrict to what be produce from contact to the material of the offset field where electric contact be make , and an electrochromic data medium by the MACHIRU layer combination reflective object / electrode locate inside a mirror element , and especially the factor on the difficult environment of much others be the outside of an automobile , and on the other hand , it process about a reflective object by the reflective object on the reverse side of the posterior part glass surface so that it remain among the life of a mirror . The speed, the good high-end reflection factors (typically, by the external mirror, it is larger than 50%, and larger than 60% in an internal mirror), and low cost of coloring are requirements important for an extinction mirror, and the above-mentioned structure offers the mirror suitable for these requirements. Therefore, in order to make the mirror of such high performance that it is surprised, practical electrode coating of low cost can be used comparatively. Conductive transparent high coating is in any of non-endurance, low permeability, and/or very high cost. It is desirable to use transparence coating which has disadvantageous profit of the proper lower than that of coating with those expensive conductance for this reason and which has the endurance of low cost comparatively. On the other hand, a metal is used and has very advantageous high conductance. The electrochromic mirror which has the reflective object / electrode containing the single metal layer on the front surface of a posterior part element is already described. However, the concept from which the electrical conductance of an electrode with the second transparent surface of a mirror element makes the extinction mirror made far low more nearly intentional than the multi-layer combination reflective object / electrode conductance of the third surface of a mirror element is desirable. This intentional mismatch of the conductance which has the relation of the symbiosis which uses coating of low cost in practice offers structure with a remarkable industrial possibility, its conductance of a transparent electrode is more substantially [than that of a multi-layer combination reflective object / electrode] low, and a multi-layer combination reflective object / electrode consists of coating more than two-layer. The first coating on posterior part glass is low cost and a high conductance base metal, for example, chromium, preferably. Coating as an end product on a MACHIRU layer combination reflective object / electrode is, in order to bring a high reflection factor and high stability to using it as an electrode for electrochromic equipments, the metal, for example, the rhodium, of a thin high reflection factor. coating of one or more layers on the surface of the reverse side of a front element -- color control coating of one or more layers -- although the tin oxide doped to the fluorine next is included, the thing for which coating with the arbitration more transparent than coating on the front surface of a posterior part element which has the demanded low property substantially with conductance will be suitable should understand. This concept is included in the electrochromic mirror of both inside which can contain the external world and a glare photosensor, and outside, or the glare photosensor was located after mirror glass and it removed, it sees through the portion of a mirror with the reflexivity material removed partially, or a glare photosensor is located in the outside on the surface of reflexivity. Independently, it is removed, the field 45 and 46, for example, each, of an electrode and a reflective object, or it is partially removed by the pattern of a dot, and he can see [a clock / the driver of vehicles can be transparent a vacuum fluorescence display, for example, a compass or a clock, and]. In order to measure both of the light of a glare and the external world again, only one video chip photosensor can be used for this concept, and it can apply it to the mirror which can determine the direction of a glare further. The automatic mirror inside vehicles can control the mirror of the outside of one piece or both as subordination equipment in an automatic mirror system again.

[0024] the aforementioned description -- moreover, it can apply to construction of the element for mirrors with which the greatest high reflection factor is desired, and electrochromic material may be a solution phase containing a liquid, gel, hard gel, and/or a polymer. The electrochromic material of some or all is not a solution, and it is applied especially to the electro-optics mirror acquired during actuation in respect of arbitration at those production processes that it is restricted on the surface of an electrode and dimmed further again. [than 10mA] [more] It is a hybrid design. The above-mentioned structure is transparent coating of the selected low cost, for example, Toledo, and Libbey of Ohio. It is especially effective when used with "TEK 20" marketed by Owens-Ford. The point of having excelled the automatic mirror by which current use is carried out and which is used most ordinarily is as follows. The mirror which has materialized the multi-layer combination reflective object / electrode Change a reflection factor early and it has the good color of an image in the condition of having the transparent image and not dimming it. It eliminates the need of placing silver reflexivity coating on

the fourth [of a mirror element] surface, and inconvenient. A handling phase decreases more, lessen more an opportunity to give a flaw to glass during processing by that cause, and the last product which has better optical quality is brought about. And the surface along which light must pass will be lessened more, reflection of the first surface of the top and the third surface will become near mutually, and, as a result, a still fewer multiplex image and fewer distortion will exist in the mirror for drivers. Furthermore, when used as a lateral mirror, there is more little reflection from a raindrop and dust on the front surface of a windshield, and it is protected from the sudden fall and the physical misuse to the contamination in aging and atmospheric air which often affect the reflective object with which the reflective object on the surface of a front of a posterior part glass element was placed on the surface of the reverse side of a posterior part glass element.

[0025] In the mode of this invention drawn on drawing 1 -6, the windshield element 14 of the mirror of each outside is substantially curved slightly with comparatively big radius of curvature level by the radius of curvature of infinity. It is formed by one continuous piece containing main body part part 14B in the car. This curvature has [generally] the thing of the range of 1400 to 2600 mm in the radius of curvature of the range of 1200 to 3000 mm, and a pan and is spherical. Main body part part 14B is combined in one to un-spherical partial 14A outside the vehicle which has small radius of curvature more substantially than the radius of curvature of main body part part 14B. Therefore, non-ball-like partial 14A helps the planned large visual field more substantially than the visual field of only main body part part 14B, when combined with the visual field of main body part part 14B. The posterior part glass element 18 of the mirror of each outside of this mode of this invention is the same size as substantially as main body part part 14B of a windshield element, and, moreover, un-spherical partial 14A has projected it outside in the longitudinal direction, i.e., the outside of the vehicle of both main body part part 14B and posterior part glass element 18. Since un-spherical partial 14A of the windshield element 18 is projected outside across the edge where the posterior part glass element 18 adjoins, un-spherical partial 14A of a windshield element is not dimmed when interior part of electro-optics vehicle 14B of a mirror dims. Moreover, the slant face slot shown with a slash in order to clarify depiction is used preferably, it extends the surroundings of the perimeter side of a windshield element, and hiding a part for the edge of the circumference of it should also understand.

[0026] The posterior part surface 36 of the windshield element 14 of the mirror of each outside is preferably covered with this mode of this invention by the reflexivity layer 38 only in the field of lateral un-spherical partial 14A. Although this reflexivity material cannot cover the portion 40 of the outside of a seal 16 preferably again and the portion 40 of the outside of a seal 16 cannot be seen to the driver of vehicles, if it is a request, some seals will be made intentional so that it may be visible to a driver, in order to offer the boundary for telling a driver about a difference existing in the configuration of a mirror. the non-globular shape formed of many radius of curvatures in which field 14A of the outside of the mirror of each outside is formed from the combination of the above-mentioned arbitration as already stated -- it is cylindrical and spherical or is in any of the thing of the configuration of other requests. It should also understand that a reflecting layer is on the front surface of un-spherical partial 14A. The above-mentioned structure conquers the meeting serious cost and the technical problem, when trying its best to match completely in the form of two glass of complicated curvature. Since it is in any of whether electro-optics partial 14B of the posterior part glass element 18 and the windshield element 14 is even, or to curve slightly, by attaining matching of those lapping portions still more easily, serious mismatching which produces a twin image is avoided, or becomes the minimum at least. Since un-spherical partial 14A of the front element 14 has moreover projected outside across the edge outside the vehicle of the posterior part glass element 18 and only one layer of glass exists in partial 14A of the shape of a non-ball of the mirror of each outside, any matching is not required. The deposition of the reflexivity layer 38, for example, chromium, or the rhodium is carried out on the posterior part surface 36 of partial 14A of the shape of a non-ball of the windshield element 14, and if a reflexivity layer, 22 [for example,,], is used as a reflective object again on the inner surface of the posterior part glass element 18 behind electrooptic material 24, since the electro-optics data-medium layer is very thin (generally 150 microns or less than [it]), the minimum discontinuity will exist in the reflected image When the light from reflection of the condition that the electrochromic portion of equipment was transparent measures by the layer 22 in contact with atmospheric air by the relation, he should understand that it is lower than the reflection factor of the first surface of a layer 22 10 to 20%.

[0027] It should also understand that the reflexivity layer, for example, silver, as a transparent conductor on the surface where a front and a posterior part glass element are faced in an indium stannic acid ghost (ITO) can be used on the reverse side of a posterior part glass element as an example. It is also possible to prepare a silver reflective object on the reverse side surface of partial 14A of the shape of a non-ball of a windshield in order to match. In the desirable mode of this invention, the layer of chromium or the layer of a rhodium forms the reflexivity layer 38 which was restricted to the non-ball-like field as drawn on drawing and which was prepared in the surface of un-spherical partial 14A of a windshield element. For example, the rhodium layer 22 can be used on the front surface of the thick reverse side glass element 18 by which deposition was carried out very

much over the conductive chromium layer 20. As instantiation, although a rhodium layer has the thickness of about 100 - 700A, a chromium layer has the thickness of about 300 - 1500A. Independently, the monolayer of chromium can use with the monolayer of chromium on the surface 38 instead of the double layer of a rhodium and chromium. The monolayer of smooth ITO of permeability high moreover is desirable to application of a up to [the surface 36] in both of Fields 14A and 14B, and simplifies the ITO coating method, and makes reflection of 38 max, and makes cloudiness of the reflective object 38 the minimum. When the reflective object for the vehicle exterior is placed on a front an element 14 side, smoothing of the transparent conductor 36 is not important. And it is Libbey as "TEK 20" tin-oxide covering glass. Coating which bloomed cloudy or it was a little coarse, although it was the low cost currently sold by Owens-Ford, Or Libbey Except for [before being able to use Owens-Ford "TEK 15" glass or low cost tin oxide covering glass same type or applying a reflective object to field 14A] the transparent conductive layer of tin oxide. Therefore, if it is a request, it will carry out whether the transparent conductive coating 26 on the front element 14 is applied to homogeneity, or is applied alternatively, or it is removed from a part of surface 36 before application of the reflexivity layer 38, and, in the case of the latter, the reflexivity layer 38 will be directly applied on the posterior part surface 36 of an element 14. If the configuration of this latter of the reflective object of a front element has cloudiness with transparent conductive remarkable coating, it is especially desirable. Supposing it exists, it will also be desirable for it to be lower than the range of the reflection factor of an extinction portion, or to reduce the reflexivity of field 14A to the same value as it by the permeability of the layer 26 of field 14A or selection of a reflective object.

[0028] From the above-mentioned, many of peculiarity of this mode of this invention exists in the fact that only main body part part 14B of the front element 14 in the car will dim using the principle of electro-optics. By non-ball-like partial 14A not dimming, since a driver can see the vehicles with which the lane of in addition contiguity approaches, he performs protection from a glare, and this maintains safety. Moreover, the single front side of the windshield element 14 is made finely still more easily, and can remove the ice of winter. Furthermore, the field of one piece of a windshield element is smart on a fine sight. Moreover, those discontinuity can make the layer of reflexivity material very much at the same plane desirable for the driver of vehicles closely. the reverse side whole of the mirror assembly of each outside which contain a part for the un-spherical vehicle exterior of a mirror , and both for the interior of a vehicle who dim automatically with the heat with which it be the purpose of frost and ** and the conventional heater (not shown) finally spread by heat conduction to vehicle external part 14A -- or it should also understand that it can use for cover any of only the portion which dim automatically . It will be understood by the amount of [of a mirror] un-spherical vehicle exterior's bringing about the visual field which increased very much, and this removing a blind spot from the above-mentioned substantially that the mirror of the mode of this invention can replace both of the external mirror by the side of the near external mirror of the conventional driver or a driver, and a pedestrian. The mirror of the outside of the mode of this invention combines the even main field which has the main field of the convex which has the curvature of two types, i.e., big radius of curvature, and the radius of curvature of infinity, and the latter is similar to the near external mirror of the driver of the conventional U.S. with the un-spherical portion on the portion outside the vehicle of a mirror. Since the comparatively high curvature of an un-spherical field produces the visual field expanded very much and an un-spherical portion does not dim it to coincidence, the portion outside a bright vehicle sends the signal of risk, when other vehicles adjoin immediately the vehicles equipped with the mirror of the mode of this invention and it is located. If it is a request, as for the un-spherical portion of a mirror assembly, what will also be made low should understand reflexible capacity from the electro-optics-portion which it is thinly colored or a mirror does not dim.

[0029] The desirable arrangement which connects a conductive layer to a power supply is drawn about drawing 6 . In this arrangement, in order that two electrode content fronts and the posterior part glass elements 14 and 18 may bring about the field exposed on the front and the posterior part glass element, it turns only sideways from ** 13 and is arranged in the direction opposite in parallel. The conductive spring clips 42 and 44 are formed, and they are placed on the covered glass sheet, in order to consider electric contact as the field which the conductive layer exposed. A suitable conductor (not shown) is soldered to spring clips 42 and 44, or is connected by the other method, and desired voltage is applied to equipment from a suitable power supply. It is not indispensable to be a multi-layer, or for the combination reflective object / electrode which is not so to function as cathode of a circuit, and to be maintained such, although it is desirable. The reflector glass of the mode of this invention includes preferably the slant face slot 34 which has extended around the perimeter side of an assembly. The slant face slot 34 hides and protects a part for the surrounding edge of both front and posterior part elements 14 and 18 in spring clips 42 and 44 and a list. As instantiation, the slant face slot 34 both of the application It is transferred to the grantee of this invention. Further both of the application It is the application 07th / KONCHUNIESHON of No. 907055 which is quoted as reference here and for which it applied on July 1, 1992. William It is the thing of the type currently indicated by KONCHUNIESHON application of the application 08th for which it applied on October 29, 1993 of L.Tonar / coincidence application of No. 142875. an assembly -- or [moreover, / including the motor pack for remote control of the location of a mirror] -- or the

plastics mirror back who suited so that a snap might be carried out to lateral mirror housing (not shown) which is the thing of the configuration of a request of the arbitration which is not included or a glasscase, and the conventional heater can be included. accommodation an inside mirror is supported inside an automobile in the way or the conventional way for which arbitration asks by lateral mirror housing being supported by the outside of an automobile in a request or the conventional way of arbitration, and according [the visual field of each mirror] to a hand by that cause — or it can adjust with the driver of vehicles in the conventional way by the mechanical or electric means of a type conventionally formed in the current automobile. Other modes of this invention are drawn on drawing 7 , it carries out the mirror of each outside and performs a signal function, and penetrating only the spectrum with which the common-like signal light source located behind a mirror was chosen, the reflective object on partial 14A outside a vehicle is built so that most spectrums may be reflected. In another approach, although a reflective object is reflexivity generally, after decreasing it through the layer which it is partially made light transmission nature over a large spectral range, therefore is reflected partially, it needs the signal light of sufficient reinforcement to see with the vehicles to pass. In order to separate light from the eye of a driver, it is placed behind the surface of the mirror between the signal light source and a reflective object any of the sheet of a louver or the light guide film of plastics they are. The external world photosensor of an automatic internal mirror is used with the conventional control circuit (not shown), and a signal optical output is gradually decreased under the driving conditions of Nighttime which becomes dark gradually. A part for the vehicle exterior of the mirror of each outside where it is not expected that signal light shines and passes is covered by arbitration with black or dark paint, and the interior behind a mirror reflective object is made not visible [part] on a day-ranges fine sight. In this mode of this invention, the dichroism reflective object of field 14A can be used with the light source with compatibility, the dichroism reflective object, for example, the red light emitting diode, which emits the specific spectrum wavelength of the band field of the reflective object of dichroism. Other possibilities of a dichroism reflective object and the light source which can be used are neon gas pipes, and the power supply for light emitting diode or neon tubes (not shown) is common knowledge for this contractor.

[0030] By the mirror reflected partially, the light source of the large band of arbitration can be used, although it can resist the environment of an automobile if it has the output and life of sufficient light, and if a color can approve for the safety signal of an automobile. When the light source of a fair or large spectrum is used preferably, colored another filter between the enclosures of a lamp, or the light sources and the reflective objects colored thinly is enough to bring about the output of suitable Orange or red. The color with the desirable output of the light which has the approach of a partial reflective object is Orange. The light source of the most practical low cost is the thing of the white heat type which can be changed, and includes the technology of high efficiency in which a halogen, a xenon, or other lives were extended. practical ** which a replacement bulb can obtain easily for service — it is desirable to produce the light greatest at the minimum cost using the time light source. No matter what the light source may be used, it is desirable to use any of a lamp reflective object, a lens, or its both they are towards desired in order to increase the efficiency of the output of light. The lamp reflective object as used in the field of this case is clearly separated from the mirror reflective object on the vehicle external part of the mirror of the shape of a non-ball dimmed partially. as another approach — the concept and the concept dimmed partially of this signal light — moreover, it is substantially useful about the curved uniform mirror, for example, a convex mirror, and a part of mirror dims automatically in that case, and the portion outside a vehicle is not dimmed with the feature of the signal light behind the reflective object outside a vehicle.

[0031] In order to draw light so that it may emit from the signal light source and may separate from the visual field of a driver, laser can be used for cutting a louver pattern controllable to a plastics louver member effective in drawing light out of a mirror at a precision (combustion), therefore although it can be seen with other near vehicles of the vehicles equipped with the signal mirror, it cannot be seen with the driver of the vehicles which it had such. It is in any of whether a plastics louver sheet is extruded by common or to be fabricated by common, or it can be fabricated in the form curved so that the curve of a mirror might be suited. Being arranged in the method of bringing the greatest ratio on actual of the field opened wide to the laser cutting slot stopped at a certain point in order to be able to use laser or other suitable means for burning a slot at the angle which passes along a sheet plastic and for a slot to carry out the maintenance and support on sufficient structure will be understood. The rough side elevation of this mode of this invention moreover simplified is drawn there about drawing 7 . In this mode of this invention, the front reflective object 138 is formed on partial 114A of the shape of a non-ball of glass 114, and although the reflective object 138 has very high reflexivity preferably, it is transparent metal coating partially. However, in this mode of this invention, the amount of [of a mirror] vehicle exterior does not need to be un-spherical, and if it is a request, that the amount of vehicle exterior is even or curving should understand. If it is a request, reflexivity coating will be permeability substantially again and protective coating will be prepared on the conditions carry out light from after a mirror by that cause, and it is made to penetrate. The more the natural reflection factor of a front layer is high, the capacity at the sacrifice of

the reflection factor to permeability becomes large, and, the more it goes into the range of the mirror reflection factor which can permit about 40 to 60%. A suitable reflective object is a rhodium, the covered aluminum, the covered silver, or other suitable different metals. A natural reflection factor carries out controlled thin thickness, and main points make about ten to 30% of signal light, and more than it transmit, and are so high that it is enough for in addition making about 40 to 60% of reflection factor attain. Although named 114 in drawing 7 in itself [glass], the plastics which has not bloomed cloudy is useful as an alternative.

[0032] Although the layer named 115 is visible to the vehicles by the side of it when it shines, it is a louver layer which equips the driver of the vehicles equipped with the mirror of the outside of the mode of this invention with the suitable signal pattern which can be checked as the turn or other signals which are not in sight. In the mode of this invention drawn on drawing 7, the lens 117 of arbitration is formed so that light may be drawn efficiently. The signal light source 119 of the form of an LED array, one or more filament lamps, gas-charging lamp, for example, neon, or a xenon is established, and a reflective object or the reflective object array 121 is established so that the light emitted toward a lens 117 and/or a louver 115 from the light source 119 may be drawn. If it is a request, the mask of the transparent electrode heater and black which have not bloomed cloudy can be placed between a louver 115 and glass 114. A louver 115 will be pasted up on a base with adhesives next. In actuation of this mode of this invention, when giving energy to the signal light source, a turn or other signals can follow and can be seen only to the driver of other vehicles. The reflexivity surface of a mirror functions on coincidence in the conventional way. The concept of the above-mentioned signal is expandable with this invention so that the mirror which is shown in drawing 8 and which is dimmed in electro-optics may be included. The electro-optics-assembly containing ** 213 which is formed with the posterior part glass element 218 which has the chromium and the rhodium layers 220 and 222 which penetrate light partially and conduct current on the front side although it is reflexivity, respectively and by which the seal was carried out generally named 210 is formed in the windshield element 214, the edge seal 216, and a list about drawing 8. Electro-optics data medium 224 which has desired electro-optics nature fills ** 213, and the one or more-layer transparent conductivity layer 226, for example, ITO, is formed on the rear face of a windshield 214. Although the louver layer 215 secured on the rear face of posterior part glass 218 is formed and a louver layer is visible to the vehicles by the side of it, it has to the driver of the vehicles equipped with the mirror of the outside of the mode of this invention, suitable signal pattern, for example, arrow, which can be recognized as the turn or other signals which are not in sight. This mode of this invention contains the lens 217 of the arbitration which draws light efficiently. The signal light source 219 of the form of an LED array, one or more filament lamps, gas-charging lamp, for example, neon, or a xenon is established, and a reflective object or the reflective object array 221 is established so that the light emitted toward a lens 217 and/or a louver 215 from the light source 219 may be drawn. If it is a request, the transparent electrode heater which has not bloomed cloudy can be placed between a louver 215 and posterior part glass 218, and a louver is fixed to a heater base by adhesives. Therefore, although a turn or other signals can follow and only the driver of other vehicles can see them in actuation of this mode of this invention when giving energy to the signal light source, the driver of the vehicles equipped with the mirror of the mode of this invention will look at the feature dimmed like electro-optics of a mirror.

[0033] Other modes of this invention are drawn on drawing 9. In this mode of this invention, a posterior part glass element is the same size as substantially as the windshield element containing that un-spherical portion, and the whole mirror containing that un-spherical portion has reversibly the capacity of the permeability which can be changed. The mirror of the outside generally named 111 is drawn about drawing 9. The mirror containing ** 113 which is formed with reflexivity, the conductive metal layer 122, and the posterior part glass element 118 that has metal undershirt coating arbitrarily and by which the seal was carried out of the outside generally named 111 is prepared in the windshield element 114, the edge seal 116, and a list. The tin oxide conductivity layer 126 which electro-optics data medium 124 which has desired electro-optics nature filled ** 113, and was doped, transparent conductive layer, for example, fluorine, is formed in the front element 114. A conductive layer is connected to an electrical circuit in the way mentioned above, and if it is a request, color control coating of one or more layers, 128 [for example,], will be arranged between the posterior part surfaces where the conductive layer 126 and the front element 114 adjoin. In this mode of this invention, the windshield element 114 has the radius of curvature of infinity, is substantially even or is formed in one continuous piece containing main body part part 114B in the car which has comparatively big radius of curvature and it curves slightly. Main body part part 114B is combined with un-spherical partial 114A outside the vehicle which has small radius of curvature more substantially than the radius of curvature of main body part part 114B in one. Therefore, un-spherical partial 114A is more substantially [than the visual field of only main body part part 114B] large, when it contributes to the planned visual field and is combined with the visual field of main body part part 114B. The posterior part glass element 118 of the mirror of this mode of this invention is the same size as substantially as the windshield element 114, and contains un-spherical partial 118A of the same size in the same main body part part 118B of size, and a list substantially with main body part part 114B of a windshield element as substantially as un-spherical partial 114A of a windshield element.

[0034] In this mode of this invention, the reflexivity surface inside posterior part glass 118 is the same as the type of the above-mentioned multi-layer combination reflective object / electrode which forms the whole electrode which works as a mirror reflexivity layer and contacts electrochromic data medium again. It consists of a metal layer combination reflective object / single electrode, or a series of single coating. Other electrodes on the surface inside a windshield 114 are the same as the aforementioned transparent electrode 26 in contact with electrochromic data medium inside a mirror element. The multi-layer combination reflective object / electrode of this mode of this invention Therefore, it can function in the same way and the same result as the above-mentioned multi-layer combination reflective object / electrode can be obtained. The transparent electrode on the surface inside a windshield 114 also functions in the same way, and and a difference [in / the same result as the above-mentioned transparent electrode can be obtained, and / this mode of this invention] A multi-layer combination reflective object / electrode, and a transparent electrode are that the portion of the shape of a non-ball of a mirror is included, and it will be understood that ***** 113 in which a seal 116 contains the un-spherical portion of a mirror and which has extended at the left end of mirror structure as drawn on drawing 9 is included. Therefore, the mirror containing the un-spherical portion of a mirror whole [111] has reversibly the penetrability force which can be changed, and the whole mirror functions in the same way as main body part part 14B of the mode of this invention drawn on drawing 1 -6 in the car. Although the desirable mode of this invention was drawn and it was described, it will be understood that various change and alterations are made without separating from the meaning of this invention.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the front view which explains roughly the reflector glass system of the inside/outside for automobiles.

[Drawing 2] It is expansion and the easy cross section of an inside reflector glass which were taken by the Rhine 2-2 and which were drawn on drawing 1 .

[Drawing 3] It is the exploded view of the partial extinction outside reflector glass of the aspheric surface of the electro-optics of the left drawn by drawing 1 .

[Drawing 4] It is the front view of the mirror drawn on drawing 3 .

[Drawing 5] It is the plan where the mirror drawn on drawing 4 is easy.

[Drawing 6] It is the easy side elevation on the right-hand side of a mirror which can be seen by drawing 4 which shows electro-optics structure.

[Drawing 7] It is the rough side elevation of other modes of this invention easy moreover.

[Drawing 8] It is the rough side elevation of other modes of this invention easy moreover.

[Drawing 9] It is the rough plan of other modes of this invention easy moreover.

[Description of Notations]

9 Mirror Assembly

10 Inside Mirror

11 Outside Mirror

12 Outside Mirror

13 Seal is Carried Out and it is ****.

14 Windshield Element

14A ***** spherical portion

14B A part for an in-the-car main body part

16 Edge Seal

18 Posterior Part Glass Element

20 Reflexibility Conductivity Metal Layer

22 Reflexibility Conductivity Metal Layer

24 Electro-optics Data Medium

26 Transparency Conductivity Layer

28 Color Control Layer

30 Circumference Paries Medialis Orbitae

32 Seal Possible Restoration Hole

34 Slant Face Slot Structure

36 14 Posterior Part Surfaces

38 Reflexibility Layer

40 A Part for Vehicle Exterior of 16

42 Conductive Spring Clip

44 Conductive Spring Clip

45 Electrode

46 Reflective Object

111 Outside Mirror

114 Windshield Element

114A ***** spherical portion

114B In-the-car main body component

115 Louver Layer

116 Edge Seal

117 Lens

118 Posterior Part Glass Element

119 Single Light Source
•120 Metal Undershirt Coating
121 Reflective Object
122 Conductive Metal Layer
124 Electro-optics Data Medium
126 Transparency Conductivity Layer
128 Color Control Coating
138 Front Reflective Object
210 Electro-optics Assembly
213 Seal is Carried Out and it is ****.
214 Windshield Element
215 Louver Layer
216 Edge Seal
217 Lens

[Translation done.]

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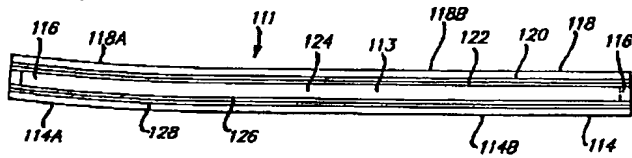
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DRAWINGS

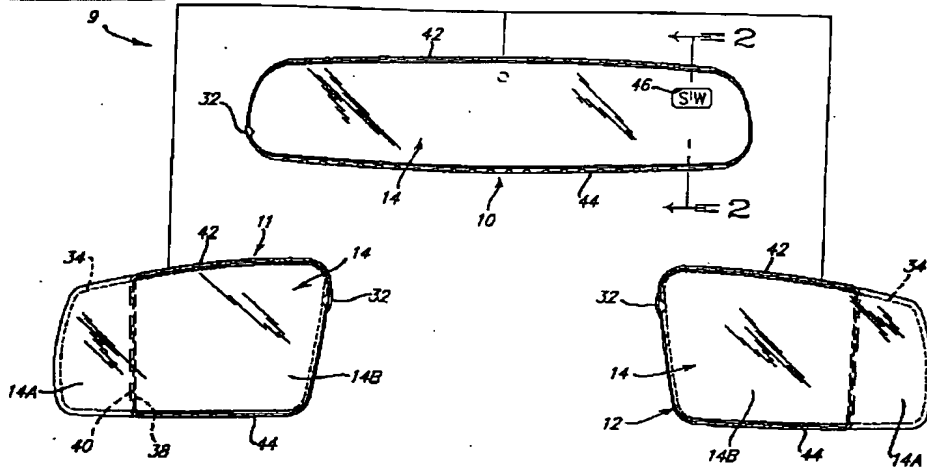
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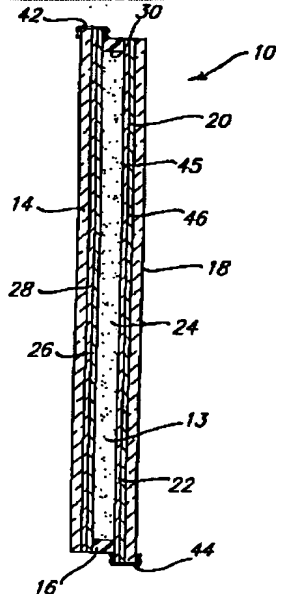
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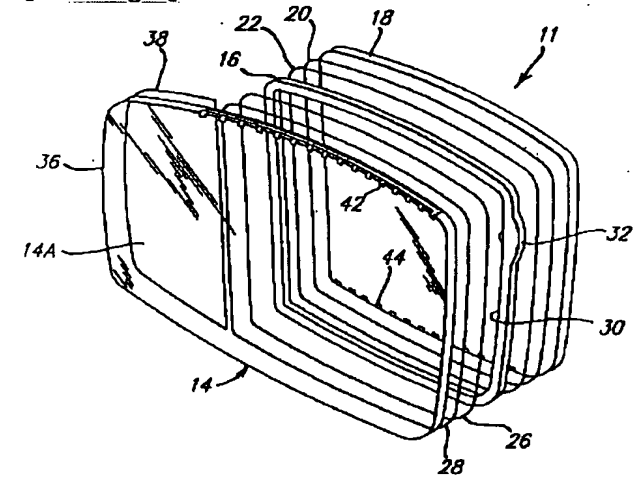
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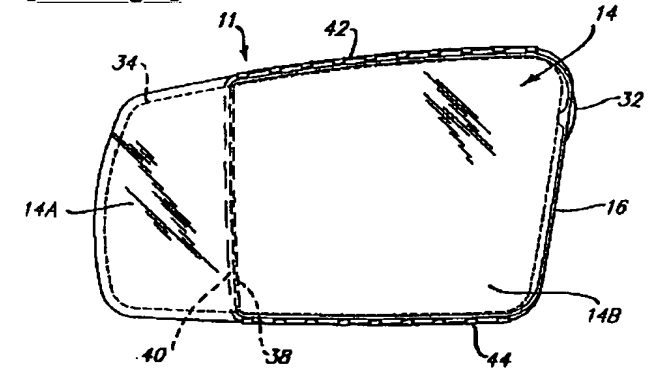
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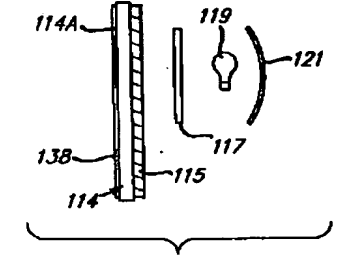
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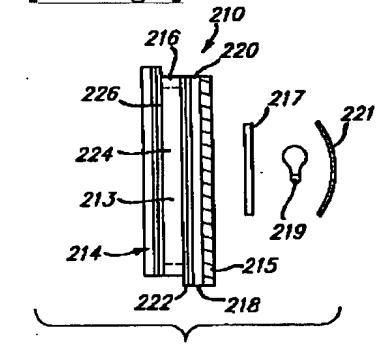
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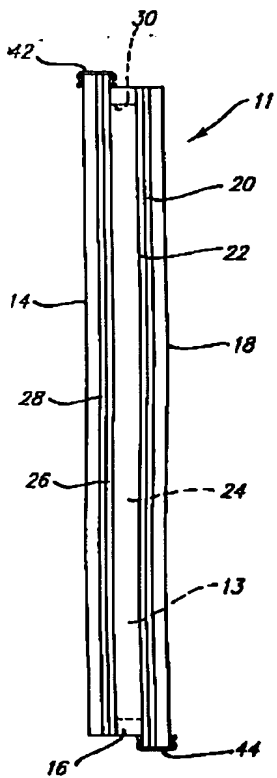
[Drawing 7]



[Drawing 8]



[Drawing 6]



[Translation done.]